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Zool. 250 (2)

# TESTACEA BRITANNICA

OR

## Natural History

OF

## BRITISH SHELLS,

MARINE, LAND, and FRESH-WATER,

*including the most minute: systematically arranged and*

EMBELLISHED with FIGURES,

BY

GEORGE MONTAGU. F.L.S.

*These are thy glorious works, thou source of good,  
How dimly seen, how faintly understood!*

*Cowper.*

Part 2.



1803.

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BIBLIOTHECA  
REGIA  
MONACENSIS.



TESTACEA BRITANNICA ;

OR,

*BRITISH SHELLS.*

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PART II.

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PRINTED BY J. S. HOLLIS, ROMSEY :

AND SOLD BY J. WHITE, FLEET-STREET, LONDON.



THE HISTORY OF THE

XXVII

OF THE HISTORY OF THE

PART II.

PRINTED BY J. S. HOLLIS, BOMBAY:

AND SOLD BY J. WHITE, WEST-STRAT, LONDON.



GEN. XXVII.

TURBO.

*Animal a LIMAX.*

SHELL, univalve, spiral.

Aperture, contracted, orbicular, entire.

\*MARINE.†

1.

Turbo Terebra. *Lin. Syst.* p. 1239.—*Gmel. Syst.* p. 3608.

TEREBRA.

*Martini Conch.* iv. t. 151. f. 1415. to 1419.

*Lister Conch.* t. 590. f. 55?—t. 591. f. 57.

*Id. Angl.* t. 3. f. 8.

*Br. Zool.* t. 81. f. 113.

*Don. Br. Shells.* i. t. 22. f. 2.

*Turt. Lin.* iv. p. 497.

Strombif. Terebra. *Da Costa.* p. 112. t. 7. f. 5. 6.

Turbo unguinus. *Pult. Cat. Dorset.* p. 45.

T. with

† It was not thought requisite in a partial work, to follow the *Linnaean* subdivisions in each genus; we have therefore divided this genus into Marine and Land: to the last are added all the fresh-water shells, and the reversed, or *heterostrophe* species, are brought together at the end, for the facility of comparison.



T. of a long, taper shape, with from twelve to sixteen volutions, terminating in a very fine point; the larger whirls are somewhat rounded, the smaller ones less distinct, marked with many fine, spiral striæ, or sharp elevated ridges: colour light-brown, sometimes rufous-brown: aperture orbicular; outer lip thin, fragile, and semi-pelucid. Length generally about an inch and a half, sometimes two inches; breadth at the base five-eighths of an inch.

Worn shells, that have lost the outer coat, are frequently marked with streaks of chesnut-brown, or with an interrupted spiral belt. This species is not uncommon on some of our shores, but mostly mutilated. We once found it alive, in great abundance, adhering to *algæ*, thrown up at *Dawlish* in *Devonshire*, after a severe storm: and have dredged it up from *Salcomb* bay, and other parts of the same coast.

Doct<sup>r</sup> PULTENEY considered this as the *T. unguinus* of LINNÆUS, and not the *Terebra*. GMELIN, however, quotes MARTINI's figures, which are certainly this shell; and does not quote any author for the *unguinus* but MULLER.

Possibly both these shells are mere varieties, with the spiral ridges more or less numerous and prominent.

Animal yellowish, striped with dusky: *tentacula* two, short, with the eyes placed at their base.

Strombif.



*Strombif. cinctus.* *Da Costa.* p. 114. t. 7. f. 8.

*Martini. Conch.* iv. t. 152. f. 1423.

*Lister Conch.* t. 592. f. 60.

*Turbo cinctus.* *Don. Br. Shells.* i. t. 22. f. 1.

*Turbo variegatus.* *Lin. Syst.* p. 1240?—*Gmel. Syst.* p. 3608?

*Turbo exoletus.* *Turt. Lin.* iv. p. 496.

T. of a long taper shape, with twelve or fourteen volutions, rather raised, and separated by a deep depression; wrought with obsolete spiral striæ, with two strong, elevated ridges in the middle of each volution: colour white, or purplish, marbled and variegated with chefnut, generally in longitudinal, undulated streaks; *apex* sharp pointed: aperture orbicular. Length two inches and a half; breadth at the base, five-eighths of an inch.

This is a much stronger shell than the preceding species, and is at once distinguished by the two remarkable, elevated ridges. DA COSTA received it from the coast of *Lincolnshire*, and *Lancashire*, and suspected it to be the *T. exoletus* of LINNÆUS. MARTINI'S figure above quoted, expresses the shell pretty well, and which GMELIN has referred to for the *T. variegatus*. Doctor TURTON has considered it the *exoletus* by his quotations.

This is certainly a very rare species on the *English* coast.

We have received it from *Sandwich* in *Kent*.

This and the preceding species are the two most perfectly turrited shells of the larger species found in *England*;



land; for we cannot consider *Turbo duplicatus* of LINNÆUS, at present, as properly belonging to the shells of Great Britain.

LISTER had no better authority for placing it in his *Anim. Angliæ* tab. 3. fig. 7. than that he bought it of a fisherman at Scarborough. On the same ground PENNANT admitted it into the *Br. Zoology*, fig. 112. DA COSTA did the like, under the title of *Strombiformis bicarinatus*, tab. 6. f. 3. DONOVAN, following these examples, has figured it in his *Br. Shells*, tab. 102. Well aware from experience, that the simple authority of a fisherman is not sufficient to stamp its validity, we have omitted it in our catalogue, thoroughly believing it never has been found on the *British* coast. Is generally supposed to be an oriental species.

3.  
CLATHRUS.

*Turbo Clathrus.* *Lin. Syst.* p. 1237.—*Gmel. Syst.* p. 3603. 63.  
*Borlase Corn.* t. 28. f. 9.  
*Lister Conch.* t. 588. f. 51.  
*Martini Conch.* iv. t. 153. f. 1434. to 1438.  
*Br. Zool.* t. 81. f. 111. 111. A.  
*Pult. Cat. Dorset.* p. 45.  
*Don. Br. Shells.* i. t. 28.  
*Turt. Lin.* iv. p. 493.

*Strombif. clathratus.* *Da Costa.* p. 115. t. 7. f. 11.

T. with from nine to twelve taper spires, terminating in a fine point; the volutions extremely rounded, separated by a deep depression, and regularly barred the whole length



length of the shell, with from nine to twelve regular, and distant, high, membranaceous ribs, running a little oblique: aperture orbicular, margin thickened by a rib that surrounds it: colour white, sometimes with a few brown markings. Length an inch and an half; breadth at the base half an inch. Exotic specimens are frequently larger, and have the ribs and markings stronger.

This elegant species, which much resembles that once costly and much coveted shell, the *Wentle-trap*, is found on several parts of our coast, but no where plentiful. We have taken it at *Falmouth* in *Cornwall*, and on the shores of *South Devon*; but seldom perfect, except small ones.

Young recent specimens are beautifully white, and polished between the ribs.

DA COSTA speaks of it as plentiful on the eastern coasts of *Wales*, and in *Scotland*. Is also found in *Dorsetshire* and *Kent*.



4.

Turbo clathratus sex anfractibus apertura ovali marginata. CLATHRATULUS

*Walk. Min. Shells. f. 45.*

Turbo Clathratulus. *Turt. Lin. iv. p. 500.*

*Adams Microsc. t. 14. f. 19.*

This species originally described by Mr. WALKER, differs in nothing from the preceding, except in size, and in the number of volutions, and ribs. We were first fa-

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voured



voured with a specimen of this shell from Mr. BOYS, with reference to the figure in *Testa minuta rariora*: have since found it on the coast of *South Devon* sparingly; and have received it from Mr. BRYER of *Weymouth*, as a shell of that shore.

It has generally five or six volutions, and the ribs are about fifteen in number, placed nearer together, and the shell rather more slender than the *T. Clathrus*, of the same size: there is, however, so much similitude, that doubts must be entertained whether they are really distinct, especially as the number of ribs in that shell is apt to vary; nor does there appear any essential difference in the aperture, although Mr. WALKER calls it oval.

5.  
ELEGANTISSI-  
MUS.  
Tab. 10. f. 2.

Turbo turritus novem anfractibus striatis apertura rotunda.  
*Walk. Min. Shells. f. 39.*

T. with from nine to thirteen flat spires, well defined by the separating line; long, taper, and terminating in a fine point; the volutions are cut longitudinally into regular, equidistant furrows, the whole length of the shell, scarcely interrupted by the separating line, and run a little oblique to the right; the *fulci* are moderately deep, but not so broad as the elevated ridges: aperture sub-orbicular, a little angulated at the upper and lower parts; inner lip somewhat reflected: colour glossy, semi-pellucid, white. Length commonly a quarter of an inch, rarely three-eighths; breadth not a fourth part of its length. A  
remark.



remarkable character of this shell is, that the extreme spire turns perpendicularly upward, and then downward on the volution beneath, making half a lateral turn.

Mr. WALKER, who speaks of this species as very rare at *Sandwich*, could only have taken his description from small and worn specimens, as he states it to have but nine spires, and to be opaque. In that state we received it from Mr. BOYS for the shell above quoted. We have found it not uncommon in sand from *Falmouth* harbour; and more rarely on the coast of *Devon*, but have obtained it alive from *Salcomb* bay in the south, and from *Ilfracomb* in the north: in this state it is covered with a brown *epidermis*, which obscures the beauty of the shell.



T. with nine extremely slender, smooth, pellucid-white spires, terminating in a fine point: the volutions greatly raised and much rounded, separated by a deep depression: aperture sub-orbicular; inner lip a little reflected. Length one eighth of an inch.

We found this species in sand from *Falmouth* harbour, very rare.



Turbo turritus septem anfractibus strigatis apertura ovali. UNICUS.

Walk. Min. Shells f. 40.

Tab. 12. f. 2.

Turbo albidus. Turt. Lin. iv. p. 500.

Adams Microsc. t. 14. f. 17.

Q q 2

T. with



T. with nine slender, glossy, pellucid-white spires, terminating in a fine point; the volutions rounded, separated by a deep depression, and wrought with fine longitudinal ridges, or striae, somewhat undulated; the intermediate spaces with extremely fine transverse striae, scarce perceptible, except greatly magnified: aperture sub-orbicular, inclining to oval. Length two-tenths of an inch.

This, and the preceding species, are the most slender shells hitherto known: found with it, and equally rare.

One we received from Mr. BOYS for WALKER's shell as above quoted, was not near so long, and was opaque as described by that author.

8.

SUBTRUNCATUS

Tab. 10. f. 1.

T. with six or seven rounded smooth spires, separated by a deep depressed line, gradually tapering to an obtuse point: aperture sub-orbicular, inclining to oval: colour pellucid yellowish-white. Length two-tenths of an inch; breadth about one fourth its length. Some of this species are a little glossy, and faintly striated longitudinally.

We found this on the shore at *Southampton*, and in sand from *Salcomb*.

9.

TRUNCATUS.

Tab. 10. f. 7.

*Helix Truncatula*. *Gmel Syst.* p. 3659?

*Turbo nitidus*. *Lin. Trans.* iii. p. 65. (*Adams.*)

*Turt. Lin.* iv. p. 487.

T. with



T. with a cylindric, smooth, glossy, pellucid, horn-coloured shell, with four spires: *apex* abrupt, as if mutilated: the volutions considerably raised, and divided by a deep depressed line: aperture sub-orbicular, slightly margined, reflecting a little on the pillar lip. Dead specimens are opaque yellowish white; and a rare variety is longitudinally striated, or marked with *crenulæ* in the *sutures*, or spiral divisions.

We found this singular species, not uncommon, on the shore at *Southampton*, at *Plymouth*, and other parts of the *Devonshire* coast sparingly: have also received it from Mr. BRYER of *Weymouth*.

The number of volutions are almost invariably the same, one instance only occurred which had five; the shape of this shell was rather more slender. Length usually two-tenths of an inch; breadth one third its length.



10.

Turbo littoreus. *Lin. Syst.* p.1252.—*Gmel. Syst.* p. 3588. 3. LITTOREUS.

*Chem. Conch.* v. t. 185. f. 1852. 1. 2. 3. 4. 5.

6. 7. 8.—*Br. Zool.* t. 81. f. 109.

*Litt. Conch.* t. 535. f. 43.—*Id. Angl.* t. 3. f. 9.

*Da Costa.* p. 98. t. 6. f. 1. 1.

*Pult. Cat. Dorset.* p. 45.—*Turt. Lin.* iv. p. 480.

*Don. Br. Shells.* i. t. 33. f. 1. 2.

Turbo obtufatus. *Lin. Syst.* p. 1232?—*Gmel. Syst.* p. 3588. 1?

*Pult. Cat. Dorset.* p. 45.

Painted Turbo. *Walk. Min. Shells.* f. 31.

T. with



T. with a very strong, sub-oval shell: the first volution large, the others, which are four or five, are small and nearly flat, separated only by a fine line: aperture sub-orbicular; outer lip thin; inner lip thick and strong. Length frequently an inch. Full grown shells are usually smooth, of a uniform brown colour: younger ones are often fasciated with broad, white, or purplish-brown bands, marked with fine spiral striæ, and have the *apex* more acute than in adults.

This species is so various in shape and markings in its infant state, that it has frequently been mistaken for a different shell: and we suspect a variety is the *T. obtusatus* of LINNÆUS, figured in CHEMNITZ vol. v. t. 185. a. b. c. d. e. f. Such are not uncommon on our shores: the striæ on some are numerous and small; others deeply fulcated, and the ridges sharp, and a little reflexed: some marked with narrow *fasciæ*, others with one white band only on the body. Frequently found of an orange-yellow, finely striated all over; the upper volutions scarce distinguishable from the striæ, and sometimes of a different colour.

A variety elegantly chequered with brown and white; (more rare) is also figured by CHEMNITZ.

The *littoreus*, usually known by the name of *Periwinkle*, is frequently taken and sold by measure in many of our sea-port towns.

Animal striped with black: *tentacula* two, fetaceous,  
not



not quite round, annulated, or streaked transversely with black: eyes at the base of the *tentacula*, prominent.



11.

T. with a strong, short, conic shell, nearly as broad as TENEBRUSUS. it is long; of a dark chocolate-brown, with five, rather ventricose, spires: the lower volution occupies half the length of the shell: *apex* obtusely pointed: aperture sub-orbicular; outer lip thin, except at the lower angle, where it spreads a little, and from thence continues to thicken on the pillar lip; inside very dark purplish-brown. Diameter a quarter of an inch.

This littoreal species, is found on the mud, and on rocks near high-water mark, and even in ditches subject to the daily flux of the tide.

We had for a long time considered this shell a variety of the young *T. littoreus*, or *T. rudis*; but late observations have inclined us to think it distinct; it is therefore given a separate place, but not without some doubt.

It is by no means so common, having at present only found it in one or two places on the coast of *Devonshire*, and once obtained it from *Kent*: and have observed, where it was most plentiful, no *littoreus* or *rudis* occurred. The colour is invariably darker than either of those shells, and without markings of any kind: it is faintly wrinkled across the spires, but rarely spirally striated as in the young *lit-*  
*toreus*,



*toreus*, and that in an obsolete manner; add to this, the strength of the shell seems to indicate its being formed and full grown: besides it is to be remarked, that no intermediate sizes are to be found of the same colour and shape, except from the tenth of an inch to one quarter.

We must however remark, that some of these littoreal shells are by no means easily ascertained in the *pullus* or fry state; and, indeed, some of them in the more advanced stages are not readily identified.

The aperture of this shell is guarded with a corneous *operculum*, like that of the *littoreus*.

When we consider the vast variety the *T. littoreus* is subject to in different stages of growth, it is but right to acknowledge, that there is no small difficulty in determining what are really belonging to that species, amongst the littoreal shells of our coasts; the shades and gradations are so intimately blended, that it is scarce possible to determine what marks a characteristic line of division.



12.  
RUDIS.

*Turbo rudis.* Don. *Br. Shells.* i. t. 33. f. 3.

*Turt. Lin.* iv. p. 480.

*Chem. Conch.* v. t. 185. f. 1853.

T. with a thick, strong shell, with five ventricose volutions, well defined by a separating line; and sometimes faintly marked with spiral striæ, most conspicuous at the base:



*apex* rather pointed: aperture sub-orbicular; inner lip thick, a little reflected, and sometimes in old shells forms a small depression, or *sub-umbilicus*: colour dirty yellow-white, or brown. Length three-quarters of an inch; breadth rather less.

Very young shells are of a deep-brown colour, but in every other respect the same; except being proportionably more slender.

This species, which no doubt has been confounded with *T. littoreus*, is at once discriminated by the round tumid volutions, in all its various stages of growth. It is not so common as that shell, but is found plentiful on the shores about *Falmouth*, especially under *Pendennis Castle*, adhering to the rocks. We have also found it at *Plymouth*, and other parts of the *Devonshire* coast; but rarely above half an inch in length.

Animal yellowish, without spots or stripes, with two setaceous *tentacula* of the same colour, most commonly marked with a longitudinal dusky streak on the outside.

The invariable difference in the colour of the animals of this and the *littoreus*, is a strong characteristic distinction. In the *operculum* they also differ; this is more round and more strongly spirally striated; but both are equally corneous, and permanent.

We have lately been favoured with some notes taken

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by



by Mr. HENRY BOYS of *Sandwich*, accompanied with many elegant drawings of various subjects in natural history; amongst which is a very good figure of this shell, with the following remarks:

“Has much the habits of *Turbo littoreus*, and the varieties of both shells run much into one another; it differs however in the distinctness of the whirls, in the colour being generally yellow, being a smaller shell, and in being viviparous; besides, the two shells are seldom found together; on the spot where this *Turbo* is found there are not any of the *T. littoreus*, though the latter are abundant in the neighbourhood. On stones between high and low water-mark at *Whitstable*, on the *Hearn* side of the copperas works.”

13.

STRIATULUS.

Tab. 10. f. 5.

*Turbo striatulus*. *Lin. Syst.* p. 1238.—*Gmel. Syst.* p. 3604. 67.

*Turt. Lin.* iv. p. 494.

*Turbo carinatus*. *Da Costa*, p. 102. t. 8. f. 10.

T. with four or five volutions, each terminating in a flat top, which marks their divisions; the base is wrought with fine spiral striæ, which towards the upper part rise into three distant, elevated, membranaceous ridges, continuing throughout the superior volutions, but become faint towards the *apex*: the furrows are deep and rounded at the bottom: it is strongly striated longitudinally from top to base; but most conspicuous in the furrows, being a little interrupted by the ridges, yet giving



ing it a pretty cancellated appearance, particularly on the lower part of the body whirl: *apex* not very pointed: aperture sub-orbicular, angulated at the upper part, and marginated. Length two-tenths of an inch; breadth not quite so much. It is rather a strong shell for its size; when recent is sub-pellucid white: dead shells are opaque. Is a very rare species, and when perfect, is a most elegant and curious shell.

DA COSTA is the only author who has given it as an *English* species: he received it from *Cornwall*. We have also found it in sand from *Falmouth* harbour, and on the coast of *South Devon*; but very rare in both places.

LINNÆUS says it is a *Mediterranean* shell.



14.

T. with a smooth, conic shell, with six rounded volutions, of a sub-pellucid, rufous horn-colour: the lower spire marked with four, and sometimes five, purplish-brown, or chesnut coloured bands, with a broad space between the three lower and the upper ones; in the second and third spires are only two bands: the *apex* is small, but not very pointed: aperture sub-orbicular; outer lip very thin; inner lip thick, white, furnished with a narrow channel, which terminates in a small *umbilicus*. Length rather more than three-eighths of an inch.

This species is subject to some variety: sometimes it



is of a light horn-colour, and the bands faint; others are quite plain, and might be mistaken for *Turbo canalis*, was it not for the mouth of that shell being sub-angulated, and the pillar lip with a much larger canal, and *umbilicus*. It also bears some resemblance to *Turbo quadrisfasciatus*, but is vastly larger, not near so thick and strong, and is destitute of the sub-carinated edge at the base.

We discovered this shell alive in *Salcomb* bay, at low water-mark, adhering to *algæ*; some are of a greenish colour between the bands; and when examined under a magnifying glass, appear in some lights to be finely reticulated.

15.  
AURICULARIS.

T. with a conic, smooth, sub-pellucid, light horn-coloured shell: volutions five, much rounded, and deeply divided by the separating line: *apex* moderately pointed, and usually of a darker colour: aperture sub-oval, or rather ear-shaped; outer lip thin; inner lip much reflexed upon the body, forming an angle about the middle, behind which is a narrow *umbilicus*. Length three-eighths of an inch; breadth not quite two-eighths.

This somewhat resembles *Helix fossaria*, but besides being a marine shell, is essentially different in the mouth. Is a rare species, never having found it any where but on the shore near *Southampton*, and there not common.

T. with



T. with a conic, pellucid, horn-coloured shell, with CANALIS. five smooth, rounded volutions, the lower one large in proportion to the rest: *apex* pointed: aperture sub-orbicular, sub-angulated; outer lip extremely thin; pillar lip broad, white, furnished with a channel or groove, terminating in an *umbilicus*. Tab. 12. f. 11.

This species has somewhat the habit of *Helix tentaculata*, but is at once discriminated by the aperture, and groove on the *Columella*; is also a marine shell. It rarely exceeds three eighths of an inch in length, and a quarter in breadth. We found this only on the shore near *Southampton*, where it is plentiful: and with it what must be considered a variety, with two brown bands on the body; in every other respect the same: such however is rare.



Turbo lævis quinque anfractibus apertura sub-rotunda mar. CRASSIOR. ginata. *Walk. Min. Shells. f. 24.*

T. with a strong, thick, opaque, yellowish-white, conic shell, with five rounded volutions, divided by a deep depression, and terminating in a fine point: aperture sub-orbicular; pillar lip wrinkled, that and the inside white. Length half an inch; breadth a quarter. Live shells are covered with a thin, light yellowish-brown *epidermis*, beneath which a few obsolete striae are observed in a spiral direction on the body whirl.

It



It has somewhat the habit of the preceding species, but is readily distinguished by being thick and opaque; in being longer in proportion to its breadth, and in having the volutions more raised; the body whorl too is not so large in proportion to the superior ones. In some instances we have seen this shell, when young, with an inclination to a groove, and *umbilicus* on the pillar lip, but never so large as in the other, and which always closes up with age.

We are indebted to Mr. Boys for our first acquaintance with this species, from whom we received a great many specimens of all sizes, with a reference to Mr. WALKER's figure as above quoted: and who informed us, it is not uncommon on the coast of *Sandwich*.

Have since found it in tolerable abundance on the shore of *Biddeford* bay.

It seems Mr. WALKER had by some accident made a mistake, in placing a minute figure by the side of the large one.

18.

PARVUS.

*Turbo parvus.* *Da Costa.* p. 104.—*Walk. Min. Shells* f. 43.

*Turbo æreus.* *Lin. Trans.* iii. p. 66. t. 13. f. 29. 30. (*Adams*)  
*Turt. Lin.* iv. p. 488.

*Turbo lacteus.* *Gmel. Syst.* p. 3604?

*Don. Br. Shells.* iii. t. 90.

*Turbo subluteus.* *Lin, Trans.* iii. t. 13. f. 15. 16. var. (*Adams*)

T. with



T. with a strong, conic shell, with five or six volutions, coarsely ribbed: colour various; some glossy white, others dark chestnut-brown, or pale rufous, sometimes variegated; but the most beautiful specimens are dark with white ribs: aperture sub-orbicular; outer lip thickened by a rib. A variety is only ribbed on the lower volution; others are sometimes found worn quite smooth and glossy, and might readily be mistaken for distinct species; but this is not unusual with many small shells taken amongst fine sand, by the constant friction of which they are worn and polished. The general size is about one eighth of an inch in length. Perfect shells have the ribs strong and distant, from nine to eleven on the body whirl.

We have found this species in great abundance in *Cornwall*, particularly at the land's end, and at *Falmouth*; and not uncommon on the coast of *Devonshire*, *Dorsetshire*, and various other parts; indeed, it appears to be one of the most common shells on all our sandy shores.

DA COSTA mentions it from *Guernsey*.



Turbo costatus. *Lin. Trans.* iii. p.65. t.13. f.13.14. (*Adams*) COSTATUS. 19.

*Turt. Lin.* iv. p. 487.

Tab. 10. f. 6.

*Walk. Min. Shells.* f. 47.

Turbo crassus. *Turt. Lin.* iv. p. 500.

*Adams Microsc.* t. 14. f. 20.

T. with



T. with a strong, sub-pellucid, glossy, white shell, with four or five volutions, much raised, and well defined by the separating line; furnished with strong ribs, and finely striated transversely, most conspicuous between the ribs: *apex* rather obtuse: aperture sub-orbicular; lip a little expanded, bordered by a strong, prominent, fulcated rim, striated in the depression: a ridge rises at the upper angle of the aperture, and runs transversely backward, then turns downward, and joins to the margin of the lip behind; this ridge is bordered above by a fine depressed line, where the longitudinal ribs terminate. Length nearly one eighth of an inch; breadth about one third its length. Dead and worn shells become opaque; in which state Mr. WALKER describes it as rare at *Sandwich*.

Mr. ADAMS found it on the coast of *Pembrokeshire*. It is not uncommon on various parts of the coasts of *Devonshire* and *Dorsetshire*, especially in sand from *Salcomb* bay; we have also taken it in sand from *Falmouth*, and other parts of *Cornwall*. In a recent state, it is one of the most beautiful microscopic shells, hitherto discovered on the shores of *Great Britain*.

20.

STRIATUS.

Turbo striatus. *Lin. Trans.* iii. p. 66. t. 13. f. 25. 26. (*Adams*).*Walk. Min. Shells.* f. 49.*Turt. Lin.* iv. p. 488.Turbo Shepeianus. *Turt. Lin.* iv. p. 501.*Adams Microsc.* t. 14. f. 22.

T. with



T. with a pellucid, glossy, white shell, with six volutions, somewhat rounded, and separated by a well defined line: the upper part of each volution faintly ribbed; the whole shell very finely and regularly striated transversely: *apex* moderately pointed: aperture sub-oval, margined. Length one eighth of an inch; breadth rather more than one third of its length.

Live shells are covered with a brown *epidermis*, that obscures their beauty; in this state we found it plentiful at *Plymouth* at the roots of *algæ*. It is also common on other parts of the coast of *Devon*; and sparingly at *Falmouth*, and other parts of *Cornwall*. Mr. WALKER says *Shepey* island, very rare: and Mr. ADAMS found it on the coast of *Pembrokeshire*.



21.

T. with a strong, conic, glossy, white shell, with seven BRYEREUS. smooth spires finely costated: the volutions are somewhat Tab. 15. f. 8. rounded, and well defined by the line of separation; but scarcely interrupt the ribs, (which are seventeen or eighteen in number,) from continuing throughout the shell: aperture oval; outer lip strong; pillar lip replicate, smooth.

A variety with stronger, and fewer ribs, not exceeding ten or twelve in number.

At first sight this has somewhat the appearance of T.

S f

*costatus*



*costatus*, but the ribs are finer, more numerous, and destitute of the transverse striæ: in the aperture also it is essentially different, not possessing the margined lip so conspicuous in that shell.

The size is double that of the *costatus*: length rather less than a quarter of an inch.

We received several of this pretty species from Mr. BRYER of *Weymouth*, who found them at different times on that coast. It is also an occidental shell.

22.

CONIFERUS.

Tab. 15. f. 2.

T. with a strong, taper, white shell, with six volutions terminating in rather an obtuse point, and furnished with about twelve undulated ribs, interrupted only by a fine separating line; the interstices between them, at the top of each volution, are formed into small cavities, giving that part a scalloped or denticulated appearance; these singular indentations continue throughout the spiral divisional line: the ribs are crossed by extremely fine, close-set striæ, not discernable without the assistance of a lens: aperture oval, oblique, strongly margined; pillar lip not reflected. Length a quarter of an inch; breadth one-third its length.

This very elegant shell we were favoured with by Mr. BRYER, who found it at *Weymouth* with the preceding species.

T. with



T. with a conic, sub-pellucid, white shell, with six DENTICULATUS. volutions, terminating in an obtuse point, furnished with nine or ten coarse ribs, that project at the top of each spire, forming strong indentations like the preceding species: aperture sub-orbicular; outer lip thickened by a rib; pillar lip smooth, indented, with one or two small tubercles at the base adjoining the ribs. Length not quite a quarter of an inch; breadth one half its length.

This species we have received with the last from *Weymouth*, and at first sight took it to be a mere variety of that shell; but upon more attentive comparison, it is found to have the aperture more approaching to round, and not properly margined, but only thickened by a rib; it is much more conic, the ribs stronger, less numerous, and forming deeper denticulations at the junction of each spire; the interstices between the ribs destitute of striæ, and sub-pellucid; and what seems the strongest specific distinction is, that the ribs do not undulate, but run oblique to the left, from the aperture to the *apex*.

Turbo Cimex. *Lin. Syst.* p. 1233.—*Gmel. Syst.* p. 3589. 5. CIMEX.

*Turt. Lin.* iv. p. 481.—*Gualt.* t. 44. X.

*Don. Br. Shells.* i. t. 2. f. 1. 1.

Turbo cancellatus. *Da Costa.* p. 104. t. 8. f. 6. 9.

T. with four strong, conic, cancellated, white volutions, well defined by a considerable depressed line: it is remarkably thick for its size, and the decussated striæ are



coarse, which gives it the appearance of being deeply punctured all over: *apex* rather obtuse: aperture sub-oval, margin thick; outer lip crenated on the inside. Length one eighth of an inch; breadth nearly one half its length.

We have found this species at *Falmouth* in *Cornwall*, and on the south coast of *Devon*, but rarely: have also received it from *Sandwich* in *Kent*.

It is sometimes taken in *Guernsey*, and is a shell of the *Mediterranean*; but does not seem any where plentiful.

25.  
SUBUMBILICA-  
TUS.

T. with a smooth, sub-glossy, conic, yellowish-white shell: volutions four or five, very tumid, the first occupying above half the shell: *apex* rather obtuse: aperture oval; outer lip even; inner lip a little reflexed, forming a sulcus or *sub-umbilicus*. Length one eighth of an inch; breadth one half its length.

This species, noticed by Mr. BRYER on the shore at *Weymouth*, differs from *Turbo Ulvæ* in being more ventricose, and more tumid in the volutions, and essentially in the aperture; and in being more umbilicated.

From *T. ventrosus* it not only differs in the greater proportional breadth at the base, but in the aperture being exactly ovate, and not contracted into an acute angle  
at



at the upper end, as in that and the *Ulvæ*: it never grows to the size of the latter, and exceeds that of the former.



*Turbo eburneus.* *Adams Microsc.* t. 14. f. 15.

*Walk. Min. Shells.* f. 36.

26.

VENTROSUS.

Tab. 12. f. 13.

T. with a smooth, glossy, thin shell, with six ventricose, or much rounded volutions, of a light pellucid horn-colour; but when the animal is in it, the appearance is black: *apex* moderately pointed: aperture suborbicular, closed by a thin, wrinkled, corneous *operculum*: margin almost entire the whole way round. Length one eighth of an inch; breadth about one third its length.

This species is not uncommon on the *Kentish* coast, at *Folkstone* and *Sandwich*, confounded with *T. Ulvæ*, for which we have received it.

It is however perfectly distinct from that shell, and may be readily distinguished by its strongly elevated and rounded volutions, glossy appearance, and colour; the other being always dull-brown, opaque; and vastly thicker.

This shell retains the greater part of its black colour when preserved with the animal in; but dead specimens are opaque white, as Mr. WALKER describes it; and was probably the only state in which Mr. JACOBS had ever seen



seen it, by giving it the name of *eburneus*, (as Mr. ADAMS informs us.)

27.

ULVÆ.

Turbo Ulvæ. *Br. Zool.* t. 86. f. 120.—*Turt. Lin.* iv. p. 499.

*Da Costa.* p. 105.

Helix Ulvæ. *Pult. Cat. Dorset.* p. 49.

T. with from five to seven smooth volutions, not rounded, but nearly flat, separated by a small line; *apex* moderately pointed: colour opaque, dark, or rufous-brown: aperture sub-oval; inner lip reflected on the *Columella*, forming a slight depression behind, but no *umbilicus*. Length generally about a quarter of an inch; but we have found it at *Poole* of an extraordinary size, nearly three-eighths of an inch long, and one eighth broad. Dead shells are frequently of a dull opaque white; *operculum* corneous, radiated with arched striæ from the inner margin.

This is a very common species in most of our inlets and harbours, but seldom on the open shores exposed to the fury of the waves.

Is frequent on *ulvæ* and other marine plants, and on the mud about high water-mark; sometimes in such vast profusion as to almost cover the surface: and it is observable, where these are found in quantity, scarce any other convoluted shell is seen, except perhaps *T. littoreus*, *T. rudis*, and one or two other common species.

Turbo.



Turbo Pullus. *Lin. Syst.* p. 1233.—*Gmel. Syst.* p. 3589. 6. PULLUS.

*Pult. Cat. Dorset.* p. 45.—*Turt. Lin.* iv. p. 481.

*Don. Br. Shells.* i. t. 2. f. 2. to 6.

*Borlase Cornw.* p. 276.

Turbo pictus. *Da Costa.* p. 103. t. 8. f. 1. 3.

T. with four or five rounded, smooth, glossy volutions; the first large, making nearly half the length of the shell; *apex* not very pointed: colour so various that scarce two are found alike, but all more or less streaked and spotted in an elegant manner; generally pink, or purple with dark undulated lines, or spotted with white; sometimes purplish-brown with white spots. One variety has the lines extremely fine, appearing like *striæ*; others have them broad or marked with interrupted bands. Aperture sub-orbicular, large; in old shells spreading on the *Columella*. Length three-eighths of an inch; breadth half as much.

The *operculum* belonging to this shell seems to have escaped notice, indeed it is only to be found in live specimens, which we believe do not frequently occur; it is remarkably strong, thick, and testaceous, very convex, white, and smooth externally; the interior part, when separated from the animal, is a little concave, and has a small and singular spiral turn near to one end.

This beautiful species is not uncommon on many parts of the *Cornish* coast, especially at *Whitsand* bay, and at *Falmouth*; and is equally plentiful on some of the shores  
of



of *Devonshire*, particularly at *Milton* sands in the south, and *Ilfracomb* in the north; but is rarely procured alive, except at very low tides, or by dredging. Doctor PUL-TENEY speaks of it as a rare shell on the shores of *Dorsetshire*; and we believe grows scarcer eastward.

The animal is painted like its shell, with two very long filiform *tentacula*; beneath these, at the base, are two small black eyes; close to which are two minute feelers, or *cirri*, and on each side is another, little inferior in length to the *tentacula*; these appendages are in continual motion, and are capable of turning in all directions.

29.

PUNCTURA.

Tab. 12. f. 5.

T. with six very glossy, rounded volutions, rather taper in shape, and finely reticulated: colour transparent yellowish-white: aperture sub-orbicular. Length the tenth of an inch; breadth one third its length.

We found this elegant species at *Whitsand* bay in *Cornwall*, and in sand from *Salcomb* bay in *Devonshire*, but extremely rare; its beauty is only to be seen under a strong magnifier, as the work is extremely fine; by the aid of a microscope it appears delicately punctured all over, and wrought with extremely fine decussated striae.

30.

RUBER.

Turbo Ruber. *Lin. Trans.* iii. t. 13. f. 21. 22. (*Adams.*)  
*Turt. Lin.* iv. p. 488.

T. with



T. with five pellucid, smooth, glossy, reddish-brown volutions, rounded, and divided by a fine separating line: *apex* pointed: aperture sub-orbicular, a little reflected on the pillar. Length one eighth of an inch, or more; breadth nearly one third its length.

We found this species at *Whitsand* bay in *Cornwall*, and with it a shell in every respect like, but in colour, which is perfectly white, and so transparent that the whole of the *Columella* may be seen through the shell.

31.

T. with a thin, pellucid, white, smooth, sub-cylindric shell, with four very rounded volutions, separated by a deep depressed line: *apex* rather obtuse: aperture sub-oval, contracted at the upper end; outer lip thin; inner lip a little thickened. Length one eighth of an inch; breadth one third its length. VITREUS. Tab. 12. f. 3.

This species must not be confounded for the white variety of the last described; it is more slender, the volutions are stronger, and run singularly more oblique; and is at once distinguished by its sub-cylindric shape, in which it resembles more the *T. striatus*; but differs from that shell in being perfectly smooth, and in not having a margined aperture.

The *Columella* of this species is visible through the shell.

T t

We



We found it very sparingly at *Whitsand* bay in *Cornwall*.

32.

DECUSSATUS.

Tab. 12. f. 4.

*Turbo pellucidus*. *Lin. Trans.* iii. p. 66. t. 13. f. 33. 34?

(*Adams.*)—*Turt. Lin.* iv. p. 489.

*Walk. Min. Shells.* f. 52?

T. with a sub-pellucid, somewhat glossy, white shell, with five rounded volutions, well defined by the separating line; strongly striated longitudinally, and crossed with extremely fine striae, in a decussated manner: *apex* not very pointed: aperture sub-oval, contracted at the upper part; outer lip thin; inner lip not spreading on the *Columella*. Length scarce one eighth of an inch; breadth not half its length.

We found this species very rare in sand from *Salcomb* bay. It differs from *T. Punctura* in being more inclined to a cylindric form, more strongly striated longitudinally, and in the aperture being more oval.

33.

RETICULATUS.

*Turbo reticulatus*. *Lin. Trans.* iii. p. 66. t. 13. f. 19. 20.

(*Adams.*)—*Turt. Lin.* iv. p. 488.

*Adams Microsc.* t. 14. f. 14.

*Walk. Min. Shells.* f. 32.

T. with a strong, conic, opaque, light-brown shell, with six rounded, and much raised volutions, strongly reticulated: *apex* pointed: aperture sub-orbicular, margin thick; inner lip spreading on the *Columella*, forming

a



a groove or *sub-umbilicus*. Length scarce one tenth of an inch; breadth full one half its length.

We received this species from Mr. BOYS for WALKER's shell above quoted. That author describes it to be pellucid white: those we have examined were all opaque, and of a dirty-white, or light-brown; possibly dead shells. This is perfectly distinct from the preceding, being much broader in proportion to its length, more conic, more strongly striated transversely, and the aperture stronger, and more rounded.



Turbo canaliculatus. *Lin. Trans.* iii. p. 253? (*Adams.*)

*Walk. Min. Shells.* f. 46.

*Turt. Lin.* iv. p. 489.

34.

SPIRALIS.

Tab. 12. f. 9.

T. with a pellucid, glossy, white, conic shell, with four or five volutions; the largest marked with transverse, spiral ridges, half way from the base; the rest finely ribbed longitudinally: volutions nearly flat, but well defined by the separating line, which is marked with a very fine spiral ridge: *apex* rather obtuse; aperture sub-orbicular, pillar lip turns inward and forms an apparent small denticle, which in fact is a plication or ridge, that runs spirally some way up the *Columella*; a character in this and the three following species not subject to vary like the denticulations in some other shells, but is the constant formation of the *Columella*, occasioned by the intortion of the pillar lip, as in the *Voluta tornatilis*;



to which genus they become a sort of link. Length one line; breadth half its length.

We found this in sand from *Salcomb* bay in *Devonshire*, very rare.

35.

INTERSTINCTUS  
Tab. 12. f. 10.

*Turbo interstinctus*. *Lin. Trans.* iii. p. 66. t. 13. f. 23. 24.  
(*Adams.*)—*Turt. Lin.* iv. p. 488.

T. with a glossy, white, taper shell, with five, rather flat, but finely ribbed volutions, divided by a small separating line: *apex* obtuse: aperture sub-oval: pillar lip a little reflexed, with a single small tooth. Length one line; breadth one third of its length.

We found this species in sand from *Bigberry* bay in *Devonshire*: very rare.

36.

UNIDENTATUS.

T. with a strong, conic, smooth, glossy, sub-pellucid, white shell, with rather an obtuse *apex*: volutions five or six, not much raised: aperture sub-oval; outer lip plain; *Columella* furnished near the middle with one tooth. Length two tenths of an inch; breadth nearly one half its length.

We found this in sand from *Salcomb* bay, and alive on the *Pecten maximus*, dredged out of deep water; but is by no means common.



It might readily be confounded for *T. ulvæ* by its shape, but its single tooth is an invariable discriminating mark, independent of its colour, which is always glossy white, with usually a tinge of purple, or rose-colour at the tip.



37.

T. with a smooth, glossy, sub-pellucid, white shell, *Plicatus*. with six rather slender spires terminating in an obtuse apex; the volutions are nearly flat, defined only by a fine, separating line; aperture sub-oval, contracted a little to an angle at the upper part; outer lip even; inner lip thickened, and furnished with a single tooth-like fold. Length one eighth of an inch; breadth one third its length.

Found in sand from *Salcomb* bay, but rare.

This species must not be confounded for *Turbo unidentatus*, which is vastly thicker and stronger, much broader at the base in proportion to its length, more tumid in the volutions, and larger in the aperture. It is more the shape of *Helix polita*, but is neither so finely pointed, nor is the aperture so long, and is at once distinguished from that shell by its tooth-like plication.



38.

T. with a smooth, white shell, rather slender in shape, *Pallidus*. with six or seven spires tapering to a moderately fine apex; the volutions not much raised, but separated by a well



well defined line : aperture sub-orbicular ; outer lip arcuated ; a faint duplicature on the pillar lip destitute of any tooth, but a small *umbilicus* is formed by its reflection. Length more than one eighth of an inch ; breadth scarce one third of its length.

From *Salcomb* bay, sand, very rare.

39.  
NIVOSUS.

T. with a smooth, glossy, white shell, rather slender, and tapering to an obtuse point : volutions five or six, much rounded, and deeply divided by the separating line : aperture sub-oval ; inner lip, and *Columella* quite smooth and even : no *umbilicus*. Length nearly one line ; breadth scarce one third its length.

This species has somewhat the shape of *Turbo interstinctus*, but is destitute of the tooth, as well as the ribs.

Found in sand on the south coast of *Devon*, very rare.

40.  
SEMICOSTATUS.

T. with a short, conic, white shell, obtusely pointed : volutions four or five, rounded, well defined by the separating line, and wrought with faint ribs, and fine obsolete transverse striæ on the body whirl, both of which are inconspicuous on the superior spires ; the ribs do not extend to the lower part even of the body, where the spiral transverse striæ become most conspicuous : aperture  
sub.



suborbicular; pillar lip a little reflexed, *Columella* smooth. Length half a line; breadth one half its length.

Found in sand on the south coast of *Devonshire*, but very rare.

This at first sight might be confounded with *Turbo spiralis*, but differs in the volutions being more rounded, in the ribs being coarser, and in being destitute of the tooth-like plication of the *Columella*.



37.

*Turbo trifasciatus*. *Lin. Trans.* v. p. 2. t. 1. f. 13. 14? (*Adams*) UNIFASCIATUS.  
*Turt. Lin.* iv. p. 500.

T. with a smooth, conic, white shell, with one, and rarely two bands of purplish-brown on the body, one on the second spire, and sometimes also on the third: the number of volutions are five: and it is observable when it has two *fasciæ* on the lower spire, they occupy no more space than when there is but one: the spires are very little raised, and divided only by a small line: the bands on the superior ones are close to the separating line: aperture sub-oval; exterior lip thin, and turning outwards; inner lip spreading on the *Columella*; imperforated.

The figure given by Mr. ADAMS is longer in proportion than this shell, in every other respect corresponds. Length one eighth of an inch; breadth more than one third its length.

We



We found this species rare on the shore at *Southampton*, and in sand from *Burrow* island in *Devonshire*.

42.

CINGILLUS.

Tab. 12. f. 7.

T. with a conic, sub-pellucid shell, with six volutions, marked with alternate bands of horn-colour and chestnut-brown, usually three of each on the body, and two on the other spires; frequently obsolete towards the tip, which is of a uniform brown. Recent shells are obscurely striated with the whirls, but very conspicuous at the base: *apex* moderately pointed: aperture sub-oval, contracted at the upper part; outer lip thin, not turning outwards as in the last described; inner lip a little thickened; imperforated. Length exceeding one eighth of an inch; breadth one third its length.

This shell is readily distinguished from any varieties of the preceding, by the outer lip being in a line with the shell, not turning outward; by the brown bands being darker, and the intermediate space not so white; and in live shells by the spiral striæ, which are strong at the base; it is also a more slender shell.

We found this species in great abundance alive on the shore at *Plymouth*, in one particular spot only; and also at *Salcomb* at very low water.

43.

QUADRIFASCIA-  
TUS.Cochlea parva. *Da Costa*, p. 85.

T. with



T. with a strong, smooth, sub-pellucid, sub-conic shell, with four volutions; the first very large, occupying more than half the shell: colour white, usually marked with four faint brown bands on the body, and sometimes two on the second spire; others have the bands united, and form two very broad ones on the first spire: *apex* rather obtuse: aperture sub-orbicular, thickened within, but sloped to a sharp edge on the outer lip; pillar lip broad, with a small groove ending in an *umbilicus*. Length rarely a quarter of an inch; breadth one eighth.

A variety is quite white; but those are old and worn shells; many appear plain white until carefully examined, when the faint bands may be traced. Live shells are darkest, and sometimes tinged with green. This species has somewhat the habit of *T. canalis*, but is at once distinguished by the thick outer lip; it never grows to half the size, is much stronger, more opaque, and at the base of the lower volution this has always an angulated appearance, or is sub-carinated; whereas the other is perfectly rounded at that part.

We found this shell plentiful at *Falmouth*, amongst sand from the harbour: and also on the south coast of *Devon*, particularly on the shore of *Salcomb* bay at low-water, inhabiting *algæ*.



44.

*Turbo interruptus*. *Lin. Trans.* v. p. 3. t. 1. f. 16. 17. (*Adams*) INTERRUPTUS.  
*Turt. Lin.* iv. p. 500.

V v

T. with



T. with a pellucid, glossy white, conic shell, marked with interrupted, longitudinal, ochraceous streaks, most conspicuous on the two larger spires; frequently forming two rows of oblong spots on the lower one: volutions five, not much raised: *apex* moderately pointed: aperture sub-orbicular; outer lip not very thin; inner lip reflexed. Length one eighth of an inch; breadth one third its length.

We found this species at *Falmouth* in *Cornwall*; and on the coast of *Devonshire* sparingly at *Ilfracomb*, and in sand from *Salcomb* bay and other parts.

45.  
RETIFORMIS.

Turbo tumidus quatuor anfractibus reticulatis apertura sub-ovali. *Walk. Min. Shells.* f. 37.

The Turbo with four tumid reticulated spires, with an oval aperture: colour white and opaque.

From *Sandwich*, very rare.

46.  
FUSCUS.

Turbo quinque anfractibus striatis apertura sub-ovali. *Walk. Min. Shells.* f. 42.

The five-spined, striated Turbo, with a sub-oval aperture: colour opaque-brown.

From *Bysing Wood*, near *Faversham*, very rare.

Turbo



*Turbo strigatus. Adams. Microsc. t. 14. f. 16.*

STRIGATUS.

*Turt. Lin. 4. p. 500.*

*Turbo tribus anfractibus primo strigis tribus transversis apertura subovata. Walk. Min. Shells. f. 38.*

The three-spined Turbo, the first spire with three transverse ridges, and a sub-oval aperture; the colour opaque white.

From *Seafalter*, very rare.



*Turbo carinatulus. Turt. Lin. iv. p. 500.*

CARINATULUS.

*Adams Microsc. t. 14. f. 18.*

*Turbo turritus carinatus septem anfractibus apertura coarctata marginata. Walk. Min. Shells. f. 44.*

The taper, carinated Turbo, with seven spires, and contracted, marginated aperture: colour opaque white.

From *Sandwich*, very rare.



*Turbo striatus quatuor anfractibus apertura ovali marginata. RIVULUS.*

*Walk. Min. Shells. f. 57.*

The striated, four-spined Turbo, with an oval marginated aperture: colour opaque white.

From a stream near *Faversham*, very rare.



50.  
SANDVICENSIS.

*Turbo Sandvicensis.* *Turt. Lin.* iv. p. 501.

*Adams. Microsc.* t. 14. f. 23.

*Turbo* tribus anfractibus reticulatis apertura unidentata.

*Walk. Min. Shells.* f. 55.

The three-spined, elegantly reticulated *Turbo*, with one toothed oval aperture: colour pellucid white.

From *Sandwich*, exceeding rare.

The six preceding, minute species, we have been obliged to copy from the *Testacea minuta rariores* in Mr. WALKER'S OWN words.

51.  
FULGIDUS.

*Helix fulgidus.* *Lin. Trans.* iii. p. 254. (*Adams.*)

*Turt. Lin.* iv. p. 531.

*T.* with a sub-conic, pellucid, smooth, glossy shell, variegated with white and bronze, usually in bands: volutions three, the first very large: apex small, obtuse: aperture sub-orbicular, margin attenuated. Length half a line.

We found this species in sand from *Whitsand* bay *Cornwall*.

52.  
ALBULUS.

*Turbo* quinque anfractibus longitudinaliter costatis, apertura subrotunda. *Lin. Trans.* iii. t. 13. f. 17. 18. (*Adams.*)

*Turbo*



*Turbo albulus.* Shell opaque, with five longitudinal ribbed whorls: aperture roundish, not margined. *Turt. Lin. iv. p. 488.*



53.

*Turbo testa lævi tribus anfractibus, lineis fuscis characteri-* **SCRIPTUS.**  
formibus, apertura subrotunda. *Lin. Trans. iii. p. 65. t.*  
13. f. 11. 12. (*Adams.*) Obs. Istæ lineæ lineis *Lichenis*  
scripti omnino similes.

Shell smooth, opaque, with three whorls, and brown lines, resembling characters: aperture roundish. The lines exactly resemble those on the *Lichen scriptus*. *Turt. Lin. iv. p. 487.*



54.

*Turbo decem anfractibus longitudinaliter costatis, testa ad api-* **SUBARCUATUS.**  
cem subarcuata. Color albus. *Lin. Trans. iii. p. 66.*  
t. 13. f. 27. 28. (*Adams.*)

Shell pellucid, white, and a little curved towards the tip, with ten longitudinal, ribbed whorls. *Turt. Lin. iv. p. 488.*



55.

A. *Turbo sex anfractibus spiraliter striatis, costis remotis,* **ELEGANS.**  
apertura ovali. *Lin. Trans. iii. p. 66. t. 13. f. 31. 32.*  
(*Adams.*)

Shell pellucid, with six spirally striate whorls, and remote ribs: aperture oval. *Turt. Lin. iv. p. 489.*

Not



Not *Turbo elegans* of GMELIN.

56.

DIVISUS.

*Turbo* quatuor anfractibus, lævibus et striatis; apertura sub-  
ovali. *Lin. Trans.* iii. p. 254. (*Adams.*)

Shell pellucid, white, with four whorls, each divided  
into two parts; the upper one smooth, the lower one  
spirally striate: aperture sub-oval. *Turt. Lin.* iv. p. 489.

57.

SUBRUFUS.

*Turbo* subrufus testâ lævi quinque anfractibus superne sub-  
angulatis. *Lin. Trans.* v. p. 3. t. 1. f. 18. 19. (*Adams.*)

Shell smooth, with five whorls somewhat angular  
above: opaque, dull red, the upper part of each whorl  
marked with a white transverse band. *Turt. Lin.* iv.  
p. 500.

The six last shells never having come under our in-  
spection, we have been obliged to copy from the descrip-  
tions of minute shells, given by Mr. ADAMS in the *Lin-  
næan Transactions*, as productions of the coast of Pem-  
brokehire.



## \*\*LAND AND FRESH-WATER.†

58.

*Turbo Muscorum.* *Lin. Syst.* p. 1240—*Gmel. Syst.* p. 3611. 94. MUSCORUM.

*Chem. Conch.* ix. t. 123. f. 1076.

*Muller Verm.* ii. p. 105. No. 304.

*Schroet Erdconch.* p. 140. t. 1. f. 7.

*Br. Zool.* t. 82. f. 118?

*List. Angl.* t. 2. f. 6.—*Turt. Lin.* iv. p. 499.

*Petiv. Gaz.* t. 35. f. 6.

*Pult. Cat. Dorset.* p. 46.

*Don Br. Shells.* iii. t. 80.

*Turbo cylindraceus.* *Da Costa.* p. 89. t. v. f. 16.

T. with a smooth, glossy, sub-pellucid, sub-cylindric shell, with six spires, of a yellowish-brown horn-colour; *apex* obtuse: aperture sub-orbicular, margined; the margin white, a little reflexed, forming a depression, or *sub-umbilicus*; pillar lip frequently furnished with a single tooth. Length rather more than the eighth of an inch; breadth about one third its length. Dead shells frequently become yellow, and in a further advance towards decay are white and opaque.

The young, even after they are nearly arrived at full growth, are destitute of the white margined aperture, and the tooth; nor indeed is this last mark always to be found in apparently adult specimens. In the more infant state it has a *trochiform* base and aperture.

This

† The *Turbo fuscus* and *rivulus* appear to belong to this division, but as they are unknown to us, it was thought proper to leave them together with the few other of Mr. WALKER's shells not identified.



This species seems to be pretty generally diffused, but is rather scarce in some situations: it is found under moss at the roots of trees, or in the crevices of the bark, and on old walls.

Doct<sup>r</sup> SOLANDER had named it *Turbo dolioliformis*, as Mr. BOYS informs us.

We have followed most authors in quoting *T. Muscorum* of the *British Zoology* for this shell, but cannot help expressing some doubt, as the figure does not in the least represent it, but is more like *Helix lubrica*.

GMELIN has erred in quoting tab. 1. fig. 6. of SCHROETER's *Erdconchylien* for a variety of this, which he says, is furnished with eight teeth. That shell is perfectly distinct, and is certainly our *Turbo Juniperi*. The *muscorum* never has more than one tooth; and, as we before remarked, is as frequently without any.

Fig. 8. tab. 2. LISTER *Anim. Angliæ* which GMELIN has referred to for this shell, though with doubt, is certainly the *Helix obscura*.

In company with this is sometimes found, what must at present be considered as a variety; it is not above half so large, with the same number of volutions, and is exactly similar in shape, but the aperture is not margined; and is always destitute of the tooth.

*Helix*



*Helix minuta*. Muller. *Verm.* ii. p. 101. No. 299?

SEXDENTATUS,

Gmel. *Syst.* p. 3660?—Turt. *Lin.* iv. p. 538? Tab. 12. f. 8,

*T.* with a smooth, brown, horn-coloured, oval shell, with five spires somewhat rounded: *apex* obtuse: aperture sub-orbicular; outer lip uneven, sub-angulated; usually furnished with six teeth, four on the outer lip, and two on the inner. Length one line; breadth one half its length. Younger shells have only four teeth.

We first noticed this species on the *Iris pseudacorus* or yellow-flag, in a boggy place in *Cornwall*, and afterwards in *Devonshire*, but rare: and since in great abundance among the *rejectamenta* of the river *Avon*, after floods, about *Lackham* in *Wiltshire*; probably washed from the neighbouring meadows.

It is also found about *Sandwich* in *Kent*.

This shell might readily be confounded, at first sight, for the young of *T. muscorum*; the distorted aperture, and teeth, however, are at once specific marks of distinction. To *T. Vertigo* it also bears some resemblance, but the shape of the aperture, number of teeth, and contrary turn of the volutions of that shell, is sufficient to discriminate them.

If MULLER had not expressly said, "*apertura ovali edentula*" we should not have had a doubt of this being his *H. minuta*; the teeth, however, are not always readily

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discovered, till the aperture has been well cleaned, and it is possible even that penetrating naturalist may have overlooked this circumstance, in a bad specimen of so minute a species.



60.

TRIDENS.

Tab. 11. f. 2.

Turbo tridens. *Gmel. Syst.* p. 3611.—*Turt. Lin.* iv. p. 499.*Pult. Cat. Dorset.* p. 46.—*Gualt.* t. 4. F.Helix tridens. *Muller. Verm.* ii. p. 106. No. 305.

T. with a sub-cylindric, smooth, glossy shell, of a light-brown colour: volutions six or seven, scarcely raised, or distinguished, but by the separating line: *apex* obtuse: aperture small and curved; outer lip furnished with one tooth on the margin; pillar lip a little reflexed, with two long and two short teeth alternate. Length a quarter of an inch.

The species here described we received from Doctor PULTENEY, who has given it in his Catalogue of *Dorsetshire* shells; and who says it is found on water plants, by the river *Stour* in *Dorsetshire*. Dead shells are usually white. It is possible most of this species may have only three teeth, especially such as are not full grown; those we examined were rather larger than usually described, and had all five teeth; two however are very small, and might easily be overlooked.

On the authority above stated, it is here given as  
*British,*



*British*, though it must be acknowledged we have never been fortunate enough to find it.



61.

Carychium minimum. *Muller Verm.* ii. p. 125. No. 321. CARYCHIUM.

*Schroet. Flusconch.* p. 324. No. 122.

Helix Carychium. *Gmel. Syst.* p. 3665.

*Turt. Lin.* iv. p. 541.

Turbo

*Walk. Min. Shells.* f. 51.

T. with a glossy, pellucid, white shell, with five volutions finely striated longitudinally, rounded, and well defined by the separating line: *apex* obtuse: aperture sub-oval, contracted, marginated; outer lip thickened inwards in the middle by a knob; pillar lip furnished with two teeth, and sometimes the rudiment of a third, above the other two. Length scarce one line; breadth one third its length.

This, the smallest of our land species, is not unfrequent in woods, and on mossy banks.

We have found it in several parts of *Wiltshire*, particularly in *Lackham* wood, and in drifted sand of the river *Avon*: also in *Devonshire*, and other parts. Is common in *Kent*. Mr. BOYS sent it to us from *Sandwich*, for Mr. WALKER's shell above quoted; who says, it is found on the mossy banks of a stream near *Faversham*.

The minuteness of this species has probably been the  
X x 2 cause



cause of its obscurity, for it is by no means uncommon under decayed wood, particularly the bark, in damp places. The striæ with which it is furnished are regular, but so extremely fine, as to render a good lens necessary to discover them.

MULLER, who has divided his shells into *genera*, from the structure of the animal inhabitant, has called this a *Carychium*, genus xxv. where this species stands alone; the characters are "*tentaculis duobus truncatis, oculis ad basin postice.*"

This author is perfectly correct; the animal is of a yellowish-white, with only two short, cylindric, obtuse, or truncated *tentacula*; at the base of which between, or nearly behind them, are placed two very conspicuous, approximating, black eyes.

62.

JUNIPERI.

Tab. 12. f. 12.

*Schroeter Erdconch.* p. 140. t. 1. f. 6.*Chem. Conch.* ix. t. 135. f. 1236. a. b.

T. with a sub-cylindric, opaque, brown shell, with eight or nine spires striated longitudinally-oblique: the volutions are not rounded, or much raised, but well defined by the separating line; the four first are cylindric, the rest taper to an obtuse *apex*: aperture sub-orbicular, margined, reflexed, white, furnished with seven teeth, three on the outer lip, and four on the *Columella*:\* at the

\* These projections, usually called teeth, are not properly denticles or tooth-shape protuberances, but are fine white *laminæ*, or ridges, running



the base behind the pillar lip is a singular and large cavity, formed by the contraction of the throat, or interior part of the mouth, and the greatly expanded lips; the margin of the aperture does not quite meet upon the body whirl. Length rather more than a quarter of an inch; breadth not half its length.

This appears to be a rare shell, or at least extremely local in *England*. We first found it, very sparingly on an old mossy wall at *Easton Grey* in *Wiltshire*, ten or twelve years ago; and never since till lately, when we discovered considerable abundance at the roots of *juni-per* bushes, on the sides of the hills, near *Devizes*, in the same county.

CHEMNITZ has given a tolerably good figure of this shell, but too large; and likens it to the *T. muscorum*, but that it is not pellucid, is sharper pointed, with nine spires; and has the mouth beset with teeth: and also observes, that SCHROETER remarks, it is not uncommon in *Thuringia*. Indeed it appears to be from the latter author, that the former obtained his knowledge of the shell; but unfortunately has jumbled with it the *Turbo tridens*, by quoting the *Helix tridens* of MULLER.

GMELIN has also fallen into this error, by quoting CHEMNITZ's shell for his *T. tridens*.

SCHRO-

spirally backwards, in a parallel direction to each other: those on the exterior lip may in most instances be traced through the outside of the shell, and are nearly a line in length.



SCHROETER makes a comparative description between this and the *T. muscorum*, and expressly says this has seven teeth: his figure is also more the natural dimensions, than that given by CHEMNITZ, who has made it nearly double its real size.

63.

## ELEGANS.

*Turbo elegans.* *Gmel. Syst.* p. 3606. 74.

*Lister Conch.* t. 27. f. 25.—*Id. Angl.* t. 2. f. 5.

*Chem. Conch.* ix. t. 123. f. 1060. a. to e.

*Pult. Cat. Dorset.* p. 45.—*Gualt.* t. 4. A. B.

*Shroet Flussconch.* p. 366. t. 9. f. 15. a. b.

*Nerita elegans.* *Muller Verm.* ii. p. 177. No. 363.

*Turbo tumidus.* *Br. Zool.* t. 82. f. 110.—*Turt. Lin.* iv. p. 480

*Turbo striatus.* *Da Costa.* p. 86. t. 5. f. 9.

*Don. Br. Shells.* ii. t. 59.

*Morton Northamp.* p. 415.

*Turt. Lin.* iv. p. 495.

*Turbo lincina.* *Lin. Syst.* p. 1239?—*Gmel. Syst.* p. 3605. 71?

*Turbo reflexus.* *Lin. Syst.* p. 1238?—*Gmel. Syst.* p. 3605. 70?

T. with five ventricose volutions, tapering to rather an obtuse *apex*, marked with strong spiral striæ, crossed by finer longitudinal ones, giving the shell a reticulated appearance: colour generally cinereous, with a tinge of purple, the tip frequently quite purple, and void of striæ; sometimes prettily fasciated with spots, or broken bands of purplish-brown, or longitudinally streaked with the same. Dead shells are often white. The aperture is orbicular, projecting on the pillar lip, a little reflexed;

mar-



margin faintly marked by the striæ: behind the pillar lip a cavity, or *sub-umbilicus*: *operculum* testaceous, spirally striated. Length five-eighths of an inch; breadth three-eighths.

This elegant species is the only *British* land shell with a testaceous *operculum*. It is rather local, but sufficiently plentiful in some parts; chiefly inhabiting dry gravel, or sandy soil, under moss. We have found it in great abundance, close to the sea at the roots of fern, to the west of *Tenby* in *Wales*; as well as in the woods at *Lackham* in *Wiltshire*. It has also been found in some parts of *Kent*, *Lincolnshire*, *Yorkshire*, and *Northamptonshire*.

DA COSTA says in *Surry* about *Darking*: and PENNANT in the woods of *Cambridgeshire*. Doctor PULTENEY observes, it is common on the higher downs of *Dorsetshire*, especially near the sea, and that he had seen it plentiful on *Hod Hill* near *Blandford*: we also noticed it on *Portland*, and at *Swanage* in the same county.

On the continent it is found in *France* and *Italy*; and according to CHEMNITZ on the *Pyrenean* mountains under bushes.

SCHROETER seems to have been puzzled where to place this shell, whether amongst his land, or fresh-water species; as he observes, some make the animal to possess four *tentacula*, while others give it only two: but appears



appears to have favoured the latter opinion; from whence he concludes, it must belong to the water, as the animals of all land shells possess four *tentacula*: and he appears the more confirmed in that opinion, on account of its being furnished with a strong testaceous *operculum*.

It is indeed the only instance we can produce, of a land shell being provided with a permanent testaceous *operculum*; but the animal of *Turbo Carychium*, as well as this, has but two *tentacula*: and MULLER informs us his *Vertigo pusilla*, our *Turbo Vertigo*, which is also a land shell, is inhabited by a *limax* of a more singular formation; for with only two *tentacula*, the eyes are placed at their tips: so that, although we have not hitherto discovered any aquatic *limax* with four regular *tentacula*,\* yet such animal possessing only two, is not a criterion of its being an inhabitant of the water.

The animal of this shell has also another uncommon property for a land *limax*, as we are informed by LISTER, who says they are of different sexes. Whether this is the case in the few other land species with two *tentacula* remains to be proved; it is however probable, and that those with four *tentacula* are invariably hermaphrodite, and have their superior ones ocellated.

LISTER has further elucidated the subject, by giving  
a

\* The plumose appendage on the back of the head of *Turbo fontinalis* and *Helix cristata*, cannot be considered as proper *tentacula*.



a dissection of both sexes of the animal in his *Exercitatio* tab. 1. where it is represented with two *tentacula* only, and the eyes placed at their base. The same plate is given in his *Conchology* tab. 4. *Anat.* and unfortunately in these plates a figure is given of a compressed *Helix* without explanation; but which is evidently the shell of the animal figured at No. 4. in order to make a comparative view of the organs of generation. The want of some explanation of the figure of that shell has led to error and confusion; though he has expressly referred to Tit. 5. of his *Anim. Angliæ* for the proper shell of the anatomical figure of the *limax* in question.

GEOFFROY, as well as LISTER, was perfectly right in giving the animal only two *tentacula*, and in making it a land species.

The animal is of a pale brown colour, with a long snout, which is strongly striated transversely: *tentacula* two, somewhat compressed, wrinkled, and sub-clavated, with smooth, glossy, black tips:\* eyes placed close to the base of the *tentacula* on the outside, a little elevated.

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\* It is perhaps to be doubted whether the smooth glossy tips to the *tentacula* are not really eyes, and as much deserving the appellation, as those on other species of land *limax*; if so, the animal is more essentially different from all others of its *congenera*, in possessing four such organs. Why LISTER should not have considered these sub-globular, highly polished extremities, as much the eyes as those placed at the base, is not to be determined: but if he was led to conclude they could not be such, because they were not internally retractile, or capable of being drawn within the *tentacula*; it is certainly not a sufficient reason: for it should rather be considered, that as the *tentacula* are



The snout is strong and muscular, and is used in crawling to hold by, in order to bring forward the body; it is also of considerable service in removing obstacles, especially the earth when it retires to its *hibernaculum*.

The *tentacula* are somewhat contractile, but not tubular; of course the animal is incapable of withdrawing their tips into the interior part, like the more common *limaces*.

64.

## FASCIATUS.

Turbo fasciatus. *Br. Zool.* t. 82. f. 119.

*Da Costa.* p. 90.—*Favan.* t. 65. A. 1.

*Don. Br. Shells.* i. t. 18. f. 1. 1.

*Lister Conch.* t. 19. f. 14.

*Turt. Lin.* iv. p. 481.

Helix bifasciata. *Pult. Cat. Dorset.* p. 49.

T. with a thin, sub-pellucid, taper shell, with nine spires a little rounded, but not much raised: *apex* moderately pointed: volutions not regularly striated, but wrinkled across the whirls: colour white, longitudinally streaked

(for some wise purpose) formed to be constantly exerted, so it became necessary to protect so delicate a part by a corneous covering, as in the *Cancer* tribe.

With submission therefore to the anatomical abilities of Doctor LISTER, who certainly did not consider that part to be ocellated, we think it right to remark that, whoever, well qualified for the nice operation of the dissection of those parts, may hereafter undertake the investigation, we have little doubt but our conjectures will be ascertained to be just, and that the animal will really be found to possess four eyes, two on the tips of the *tentacula*, and two at their base.



streaked with brown or chesnut, which at the base frequently become confluent, and form one or two regular bands: aperture sub-oval; outer lip thin; pillar lip a little reflexed, forming a small cavity behind. Length near three-quarters of an inch; breadth a quarter.

This species was first noticed by LISTER in *Wales*; and afterwards by PENNANT as frequent in *Anglesea*, on sandy soil near the coast. It is certainly a local species, though very abundant in some places near the sea, and rarely, we believe, but in arenaceous soil, within the influence of saline air. On the coast of *Caermarthenshire*, and on the hill above *Whitsand* bay in *Cornwall*, it is in such vast profusion, that a person cannot step without crushing numbers. At the last place is a prevailing opinion, that they contribute much to fatten sheep,\* it is indeed impossible that those animals should browse on such short grass without devouring a prodigious quantity, especially in the night, or after rain, when they ascend the stunted blades.

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Is

\* In the *History of Cornwall*, BORLASE says, p. 286. "The sweetest mutton is reckoned to be that of the smallest sheep, which feed on the commons where the sands are scarce covered with the green sod, and the grass exceedingly short; such are the *towens* or sand-hillocks in *Piran-sand*, *Gwythien*, *Philac*, and *Senan-green*, near the land's end, and elsewhere in like situations. From these sands come forth snails of the turbinated kind, but of different species, and all sizes from the adult to the smallest just from the egg; these spread themselves over the plains early in the morning, and whilst they are in quest of their own food among the dews, yield a most fattening nourishment to the sheep."



Is also very plentiful in some parts of *South Devon*, close to the sea, especially at *Bigberry bay*: even the drifted sand at this place is full of dead shells, to the depth of four feet.

In all these places it is observable, that not one is to be found as soon as you quit the sandy soil.

Doctor PULTENEY speaks of it as plentiful on the downs in *Dorsetshire*, near the sea. We found it also at *Kingsbridge* in *Devonshire*, not uncommon in one or two fields, probably brought from some distance in sand, (commonly used in that part for manure) as not a single shell is to be met with in any other place within some miles.

The *Turbo fasciatus* should seem to be peculiar to *England*, as we do not find it described as inhabiting the continent, by any foreign writer. It does not appear to be in the twelfth edition of the *Systema Naturæ*; nor is it, that we can find, in that of GMELIN, except where LISTER's figure of it is erroneously quoted for *Helix detrita*. MÜLLER and SCHROETER appear to be equally unacquainted with it.

65.

FONTINALIS.

*Turbo fontinalis.* *Pult. Cat. Dorset.* p. 45.

*Don Br. Shells.* iii. t. 102.

*Walk. Min. Shells.* f. 56.

*Petiv. Gaz.* t. 18. f. 2.

Helix



- Helix piscinalis.* *Gmel. Syst.* p. 3627. 44.  
*Turt. Lin.* iv. p. 512.
- Helix pufilla.* *Gmel. Syst.* p. 3627. 45.  
*Turt. Lin.* 4. p. 513.
- Turbo thermalis.* *Gmel. Syst.* p. 3603. 61?  
*Turt. Lin.* iv. p. 493?
- Trochus cristatus.* *Schroeter Flussconch.* p. 280. t. 6. f. 11.
- Nerita piscinalis.* *Muller Verm.* ii. p. 172. No. 358  
*Schroeter Flussconch.* p. 247. No. 61.
- Nerita pufilla.* *Muller Verm.* ii. p. 171. No. 357.  
*Schroeter Flussconch.* p. 246. No. 59.

T. with a thin, sub-pellucid, horn-coloured shell, with four or five much rounded, very prominent, smooth, or finely wrinkled volutions; the last small, and rather compressed, giving the shell an obtuse *apex*: aperture perfectly orbicular; lips thin; inner lip slightly attached to the body whirl: base perforated with a small, but deep *umbilicus*. Length and breadth nearly the same, rarely exceeding a quarter of an inch.

This species is not uncommon in some of our rivers and small streams; sometimes in stagnant waters, and particularly in drains or water-courses, in low swampy ground.

We have found it in various parts of *Wiltshire*, especially in the *Avon*, and in the moat round the old castle at *Marlborough*: in *Devonshire* not far from *Exeter*; and in *Dorsetshire* in *Perbeck* very plentiful. In the river *Kennet* about *Newbury*, it is not uncommon.

It



It is frequently covered with a concreted, stony matter, and sometimes a brown *epidermis*: dead shells are white.

Although by no means a scarce species, it has been in considerable obscurity, notwithstanding PETIVER gave a figure of it near a hundred years ago, and says, "I have observed this in fresh-water, and if I mistake not, in the *New River*."

MULLER has doubtless given this shell in two places, but in neither does he mention the singular structure of the animal inhabitant; a circumstance that would not have escaped the discriminating eye of that great naturalist, if it had ever come alive under his examination.

SCHROETER has given it in no less than three places, as so many distinct species; two of which are evidently those of MULLER: the other under the title of *Trochus cristatus*, describes both the shell and the animal perfectly well: he says he received it from Professor HERMANN, by the name of *Federbuschtragers* (plume-bearer), by which appellation it is also to be found in MARTINI *Berlin Magaz.* iv. 247. No. 59. GEOFFROY in his *German* edit. calls it *Cochlea depressa cristata*: in his *French* edit. *Le Port Plumet*.

From these authors it appears to have been found in water courses, small streams, and fish-ponds, about *Paris*, as well as in *Sweden*.

The



The *operculum* of the shell is corneous, permanent, wrought with fine spiral ridges, with a small knob in the centre.

The animal is of a pale colour, with two setaceous *tentacula* placed as usual, and another similar one, situated on the right side, close to the head; and near this, on the middle of the hind head, is an appendage of a most elegant plumose structure, (like that of the animal inhabiting *Helix cristata*,) very pellucid, extremely sensible, and capable of instantaneous retraction: the eyes are situated on the head, at the base of the two anterior *tentacula*.

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\*\*\*REVERSED.

*Animal with the foramen on the left side.*

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We have thought it proper to make a separate division of the reversed shells of this genus, in order that they might be brought together the better for comparison; and perhaps it may not be improper in this place, to define what is really intended by this term.

Nothing appears more confused and incomprehensible, than the various descriptions of different authors, concerning



cerning the spiral turns of a *heterostrophe* shell; some call it from right to left, others *vice versa*, from left to right.

Every conchologist knows, that most convoluted shells turn one way, and that there are a few species which are *heteroclitical*, or invariably turn contrary to the usual manner: some indeed have doubted, whether this is a permanent character; there requires, however, no argument to prove it is so, to those who have taken the trouble to examine the common species of *heterostrophe* shells, which daily present themselves to our notice in our rural walks. Indeed, it is rather strange, that not one of these shells, whose nature is to have their spires turn in the more unusual manner, has (to our knowledge) ever been met with to vary from that formation; as such accidental deformities have been found in a few instances, amongst those which are usually termed dextrals, or have the more usual spiral turns, and have become *lusus heterostrophon* shells.

In order therefore to explain, which way the turn of the spiral convolutions of a reversed shell takes, omitting the vague signification of turning to the right or left; we shall observe, that the more common turn of shells is with the apparent motion of the sun, or as the index or hand of a clock moves.

But in order to be more clearly understood; let us compare the spiral volutions of a shell to a common  
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cork-screw, and we shall find, that whether the mouth, or *apex*, is placed upwards, the spires will turn from the upper to the lower end like a common screw, which is in the same direction as the index of a time-piece, and what is commonly understood by a dextral or right-handed screw. As a further definition, such shells have their aperture on the right side, when examined with that end downward; and is in the direction of the sun's apparent motion.

On the contrary, a reversed shell, when placed in a perpendicular position, has its spiral volutions in an opposite direction to the motion of the index of a watch, or a clock, or to a common screw; and in fact resembles what is usually termed a sinistral, or left-handed screw. These have their aperture on the left side, or opposite the left hand of the person holding the shell with the mouth downward; and the opening is opposite the sun's apparent motion.

In order to determine whether a flat shell, whose volutions are laterally placed, is a reversed species, we have only to examine which way the volutions turn from the *apex* or centre, towards the mouth; and if we find it contrary to the motion of the index of a watch, it is a *heterostrophe*, or reversed shell: and *vice versa*,

In some of the more depressed species of *Helix*, or *Nautilus*, attention is requisite to be paid to the mouth,

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in order to determine which is really the upper side of the shell, for it is on that side the spiral turns are to be taken from the centre or *apex*: and in most instances this is to be determined by the oblique direction of the aperture to the under part, where the lip rarely extends so far as on the upper part. In fixed shells, such as *Serpula*, there is no difficulty, as the side which is *sessile* must be considered as the base, or under part. Thus in the *Serpula lucida* the fixed part is sometimes very small, and the mouth protends spirally upwards in a contrary direction to the fun; and therefore must be considered a reversed or *heterostrophe* shell, the same as if the volutions nearest the mouth had turned laterally upon the the centre or fixed ones.

This shell, indeed, is most frequently found with regular lateral volutions; and though subject to great variety with respect to contortions, it invariably turns the aperture one way.

In some species of *Nautilus*, however, there can be no rule to ascertain whether it is dextral or sinistral; for when the aperture is exactly lateral, the lip collapses the body equally, and the sides of the shell similar, as in *N. Calcar*, it cannot be defined.

In others of that genus, as in *N. Beccarii* and *Beccarii perversus*, two shells, the principal distinction of which, is the contrary turn of their volutions, it is easily deter-



determined, by the convexity of the upper side; and of course, the aperture being placed somewhat beneath.

Having thus, we hope, pretty clearly defined what is a reversed shell, or at least explained what is considered as such by us, we shall proceed to describe the few of that family in the *Turbo* genus.



*Turbo perversus.* *Lin. Syst.* p. 1240.

*Chem. Conch.* ix. t. 112. f. 959. a.

*List. Angl.* t. 2. f. 11?—*Favan.* t. 65. I. 4.

*Berkenhout.* p. 206. 3.

*Hill Swammerd.* p. 69. t. 8. f. 1. 2.

*Schroet Erdconch.* p. 138. t. 1. f. 5.

66.

PERVERSUS.

Tab. 11. f. 12.

T. with eight or nine reversed, sub-pellucid, regular, tapering spires, of a yellowish or greenish horn-colour, obsoletely striated: volutions a little rounded, and divided by a deep separating line: aperture sub-orbicular; outer lip a little reflexed; pillar lip not detached, or projecting on the body whirl, the edges white and thin: in old shells a round, obsolete, tooth-like knob, is observable at the edge of the upper angle, but is most commonly without any. Length rarely exceeding a quarter of an inch; breadth one fourth of its length.

This species is extremely local, and by no means so plentiful or common as *T. bidens*, with which it is rarely found. We have taken it in *Wiltshire*, and in *Cornwall* near *Penryn*, in both places adhering to the trunks of

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trees:



trees: and in *Devonshire* near *Kingsbridge*, under the loose bark of old apple trees, where no other shell was to be met with, but *T. Muscorum*.

No shell seems to have puzzled conchologists more than this; being generally placed in cabinets as the young of *T. bidens*.

The difficulty of obtaining a specimen, with a perfect full grown mouth, has probably led to this error. It differs however in shape, size, and colour, particularly in the bottom volution, which is even and round; whereas the *bidens* has a prominent ridge, and depression on that part; besides, the pillar lip of this reflects upon, and adheres to the body whirl, forming a small depression, or *sub-umbilicus*: in the other the pillar lip is perfectly detached, thick, and prominent.

CHEMNITZ has given a bad figure of this shell, and with it a variety, which is doubtless no other than a young *bidens*.

DA COSTA probably had never seen this species, and has given the *bidens* for the young, and the *T. labiatus*, for the adult shell. LINNÆUS particularly specifies his shell to be without teeth, by saying, "*Turbo perversus testa turrita pellucida, anfractibus contrariis apertura edentula.*" GMELIN has certainly not given this species for his *perversus*, as he says, "*testa pellucida: anfractibus contrariis non crenatis, apertura tridentata.*" From this specific character, as well as from the size, which is stated

to



to be about three-quarters of an inch in length, there is little doubt but his shell is the *T. laminatus*.

Animal dusky above, light beneath; *tentacula* four, short, cylindric, clavate, furnished with eyes at the tips of the longest.



67.

*Turbo bidens*. *Lin. Syst.* p. 1249.—*Gmel. Syst.* p. 3609. 37. *BIDENS*.

*Turt. Lin.* iv. p. 498.

*Tab.* 11. f. 7.

*Chem. Conch.* ix. t. 112. f. 559. b. (young)

*Lister Conch.* t. 41. f. 39. (right hand.)

*Id. Angl.* t. 2. f. 10.

*Pult. Cat. Dorset.* p. 46.

*Turbo perversus*. *Br. Zool.* t. 82. f. 116.

*Don. Br. Shells.* ii. t. 72.

*Helix perversus*. *Muller Verm.* ii. p. 118. No. 316.

*Strombif. perversus*. *Da Costa.* p. 108.

*T.* with twelve taper, reversed spires, swelling a little in the middle, and marked with fine longitudinal striæ: the volutions rather flat, but well defined by the separating line: colour opaque chocolate-brown; frequently cinereous, or streaked with it, especially dead shells, or such as have been exposed to the sun: aperture sub-orbicular, the upper part compressed on the outer angle near to the body; pillar lip furnished with two teeth-like folds, that run a considerable way into the shell: the margin of the lip is white, a little reflexed; the inner lip is not lost on the body whirl, as in *T. perversus*, but is raised, and perfectly



fectly detached from it; and at the back of the lower volution, behind the mouth, is a prominent ridge, and a depression. Length rarely half an inch; breadth one fourth its length.

This species is the most common of all the *British* land shells: it is found in every part of the kingdom in woods, and shady places, particularly on trunks of trees, mossy and ivy-grown walls. In its young state, before the mouth is formed, it has been confounded for *T. perversus* of LINNÆUS: but even in that state it is readily distinguished by the base being flattish, and appears unformed; which is never observed in the other at any age, the last volution being always rounded. In the colour too, it is essentially different, as in no instance is it found to be of that light, pellucid, greenish horn-colour.

DA COSTA, as well as others, has fallen into this error. DONOVAN has evidently given a figure of this shell, but is mistaken in quoting the *T. perversus* of LINNÆUS, as well as making it the *Strombiformis perversus*, of DA COSTA. The shell figured by that author is the *T. labiatus* of this work, though he erroneously describes the *T. bidens* as the young of that shell.

This species was called by Doctor SOLANDER *Turbo nigricans*.

Animal dusky: *tentacula* four, short, cylindric, clavate;



vate; the two longest furnished with eyes at their tips. The *tentacula* not so long in proportion, as those of the *perversus*; colour of the animal darker.



68.

LAMINATUS.

Tab. 11. f. 4.

*Turbo perversus*. *Gmel. Syst.* p. 3609. 88.

*Turt. Lin.* iv. p. 498.

*Br. Zool.* t. 81. f. 17.—*Gualt.* t. 4. C.

*Pult. Cat. Dorset.* p. 46.

*Chem. Conch.* ix. t. 112. f. 960. No. 1.

*Lister Conch.* t. 41. f. 39. (left hand.)

*Schroeter Erdconch.* p. 137. t. 1. f. 4. a.

*Helix bidens*. *Muller Verm.* ii. p. 116. No. 315.

T. with ten smooth, glossy, pellucid, reversed spires, of a rufous horn-colour: shape like the *T. bidens*, largest in the middle, and tapering from thence to a small round point: the volutions rather raised, but not prominent, yet well defined by the separating line: aperture sub-orbicular, compressed at the upper outer margin, where it joins the body; lip white, slightly margined, and reflexed; pillar lip a little thickened, not elevated, or detached from the body whirl, furnished with two white folds, or teeth-like *laminæ*, very conspicuous; and deep within the mouth are three or four prominent ridges, discernable through the shell when held up to the light. Length nearly three-quarters of an inch; breadth one fourth of its length.

In live shells, the animal gives it a dark appearance;  
and



and when dried and contracted within, the upper volutions only, are of a dusky-brown colour. Old shells are sometimes worn and decorticated, becoming of a cinereous colour in streaks and blotches; but never regularly striated, though possessed of faint, longitudinal wrinkles, only observable by the assistance of a lens.

This species has been confounded with *T. bidens* and *perversus*. Doctor PULTENEY, in his Catalogue of *Dorsetshire* shells, makes it the last mentioned; says it is much more common than the *bidens*; and remarks, that it is much larger than that shell, and not rarely furnished with three teeth. Possibly the Doctor had never observed all the *laminæ* on the outer lip, but only the one on that part most conspicuous. It appears to be very local; for we have never found it but in *Lackham* wood, in the north of *Wiltshire*, and at *Bow Wood*, the seat of the Marquis of LANSDOWN, in the same county. It is, however, found sparingly in *Kent*, in the neighbourhood of *Sandwich*.

This species is like *T. perversus* on the back of the lower whirl, behind the lip, being quite even and rounded; but its superior size, shape, and laminated mouth, forbids its being confounded. From *T. bidens* it differs essentially, in being superior in size; in transparency, glossiness, and want of striæ, as well as in the connexion of the pillar lip to the body; and the back of the lip being even.

Animal



Animal light-brown, paler beneath; *tentacula*, and eyes, somewhat like the last.



Turbo bidens. *Gmel. Syst.* p. 3609. 87. var. ?  
*Chem. Conch.* ix. t. 112. f. 960. No. 2 ?  
*Schroeter Erdconch.* p. 139. t. 1. f. 4. b.

Helix papillaris. *Muller Verm.* ii. p. 120. No. 317 ?  
*Gualt.* t. 4. D. E ?

69.

BIPPLICATUS.

Tab. 11, f. 5.

T. with twelve or thirteen reversed, taper spires, of an opaque brown colour, marked with numerous, strong, and regular striæ the whole length of the shell, interrupted only by the separating line, which is moderately deep and well defined: aperture sub-orbicular, much compressed at the upper part, and slightly at the extremity: lips rather thick, white, and reflected; margin connected all round: pillar lip prominent, and detached, furnished with two white teeth-like *laminæ*, approximating. Length three-quarters of an inch; breadth one fifth of its length.

This species has much the habit of *T. bidens*, but is readily distinguished by its colour, superior size, and particularly the shape of the mouth. It is also observable that this shell, though much superior in size, has the teeth invariably much nearer together; the margin of the aperture is also more reflexed and more produced.

We first discovered this species sparingly at *Easton Grey* in *Wiltshire*; and many years after observed it in

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the



the cabinets of Mr. SWAINSON and Mr. SOWERBY, in London; by whom we are informed, it was not uncommon in the neighbourhood of the metropolis, especially in *Hyde Park*.

70.

LABIATA.

Tab. 11. f. 6.

Strombif. perversus. *Da Costa*. p. 107. t. 5. f. 15.*Chem. Conch.* ix. t. 112. f. 957?

T. with nine reversed, taper spires, of an opaque, light-brown colour, wrought with numerous, strong, and regular striæ, the whole length of the shell: the volutions are flat, separated only by a fine obsolete line, which does not interrupt the longitudinal striæ: aperture sub-orbicular, with a *sinus* at the upper end, and furnished with two teeth-like *laminæ* on the inner lip; margin much reflected, very broad, thick, and white, surrounding the mouth; pillar lip a little detached from the body whirl. Length five-eighths of an inch; breadth one eighth.

This species cannot be confounded with any of the preceding *heterostrophe* shells, for independent of the unusually flat volutions, the broad, thick, margined aperture, is an unerring mark of distinction.

DA COSTA seems to have known this rare species, having given a good description of it, as an old shell of his *Strombiformis perversus*; where he not only makes mention of the volutions, not jutting out beyond each other,



other, but that the border round the mouth is very broad, flat, thick, milk white, and turned greatly outwards. Which characters neither belong to the *T. bidens*, nor *perversus*.

That it is found in the neighbourhood of *London* is without doubt, as Mr. SWAINSON informed us it was noticed in *Hyde Park*, about twenty years ago, adhering to the trunks of trees, on the north side of the serpentine river, near its banks.

This gentleman further remarked, that he believed it to be scarce, never having found more than three or four, and those in an ozier-ground in *Battersea* fields, near the wind-mills, as far back as the year 1790.

We believe this was named by Doctor SOLANDER, *Turbo labiatus*, which name we have retained, especially as it seems to be known by it, and is so marked in Mr. SWAINSON's cabinet.



Vertigo pufilla. *Muller Verm.* ii. p. 124. No. 320.

*Schroeter Flussconch.* p. 349. No. 142.

Helix Vertigo. *Gmel. Syst.* p. 3664. 155.

*Turt. Lin.* iv. p. 541.

71.

VERTIGO.

Tab. 12. f. 6.

T. with an opaque, brown, oval shell, with five reversed spires faintly striated: *apex* obtuse: aperture sub-orbicular, sub-triangular, sub-margined, indented, usu-

A a a 2

ally



ally furnished with three white teeth, two on the *Columella*, and one on the exterior lip opposite; and a large plate, or protuberance, at the angle of the outer lip. Length half a line, or scarce larger than a poppy seed.

It has much the habit of *Turbo sexdentatus*, but besides its being reversed, it is more cylindric, more obtuse at the *apex*, and differs essentially in the shape of the aperture, and in the teeth.

We were first favoured with specimens of this species by Mr. BOYS of *Sandwich*, who informed us, it was not uncommon at that place, on old walls covered with ivy: and have since found it rarely amongst the *rejetamenta* of the river *Avon* in *Wiltshire*.

The infant state of this shell has much the appearance of a *Trochus*, the aperture is quadrangular, transversely compressed; and the base flat and umbilicated.

MULLER gives this shell singly, in his twenty-fourth genus, under the title of *Vertigo*: the characters being taken from the animal, run thus, "*Tentaculis duobus linearibus, apice oculatis.*"

This is, we believe, the only instance of a *limax* possessing but two *tentacula*, furnished with eyes at their tips, and none at their base.

With



With respect to the number of teeth, it is subject to some variety, having in one or two instances lately, found it to possess six, and the rudiment of a seventh; in which state MULLER has particularly described it, but does not mention the more usual appearance of that part, which for some time occasioned us to doubt, whether with propriety, the synonyms of MULLER's shell, could be affixed to it, though his calling it *sinistrorsa*, which implies a reversed, or *heterostrophe* species, inclined us to think it the same.

This naturalist says, it is found on rotten wood, but speaks of it as rare.

In the specimen now before us, the teeth are set in pairs, two on the *Columella*, two on the right side, and the same on the left, with the rudiment of a seventh between the two pair on the exterior lip: the plate described above, at the angle of the outer lip is less conspicuous, being elongated into one of the largest teeth.

MULLER says, "*Apertura sub-quadrata, margine summo albo, arcuato, ad anfractum oppositum transverso. Dentes in ore aperturæ sex minimi albi cum rudimento septimi, tres nempe in externo aperturæ, tres in anfractu vicino.*"

Those who have an opportunity of examining this shell,



shell, will find this description to accord with ours, when it is observed, MULLER has apparently divided the natural order of the teeth; but it will be seen, the pair on the inner angle of the outer lip, stand one on each side, the upper of which, is considered by him as belonging to the *Columella*, or in the vicinity of the volution.

The irregular shape of the aperture might also be considered by some as a sub-square, but to us it appears more properly sub-trilateral, with rounded angles.



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 GEN. XXVIII.

 HELIX.
 

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*Animal a LIMAX.*

SHELL, univalve, spiral, sub-diaphanous, fragile.

Aperture contracted, either sub-rotund, or semi-lunart.

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## \*OVATE, OR TURRITED.

1.

*Helix stagnalis.* *Lin. Syst.* p.1249.—*Gmel. Syst.* p.3657.128. STAGNALIS.

*Chem. Conch.* ix. t. 135. f. 1237. 1238.

Tab. 16. f. 8.

*Muller Verm.* ii. p. 132. No. 327.

*List. Conch.* t.123.f.21.—*Id. Angl.* t.2.f.21.

*Schroet. Flussconch.* p.304. t.7. f.1. to 4.—t.

*Min. C.* f. 1.

*Helix*

† The very great connexion between the *Turbo* and *Helix* of the *Linnaean* genera, has frequently occasioned a removal of species from one to the other. Indeed, if none were to be placed in the former, but what had the aperture strictly orbicular, and entire; nor in the latter, any but those possessing a sub-lunar or roundish mouth, we should be at a loss where to place a great many species of both these genera. We have, however, followed the Swedish naturalist pretty closely, except in a few instances; particularly that of placing all the depressed species without any regard to the shape of the mouth, in the *Helix* genus.



*Helix stagnalis.* *Br. Zool.* t. 86. f. 136—*Gualt.* t. 5. I. L.  
*Da. Costa.* p. 93. t. 5. f. 11.  
*Favan.* t. 61. F. 16. & 23.  
*Pult. Cat. Dorset.* p. 48.  
*Don Br. Shells.* ii. t. 51. f. 2.  
*Turt. Lin.* 4. p. 536.

H. with a thin, brittle, pellucid, horn-coloured shell, with six or seven spires, the first very large. the others small and tapering to a very fine point; body a little wrinkled longitudinally, with a few faint, irregular, transverse ridges; aperture oval, large, more than half the length of the shell; outer lip thin; pillar lip thickened, smooth. Length one inch and three quarters; breadth one inch.

This species which is the largest of all our fresh-water univalve shells is not uncommon in many of our flow rivers, and stagnant waters. It is frequently covered with a green *epidermis*, and sometimes a concreted stony matter, that almost obliterates the upper volutions. Some authors have made this shell into two or three species, apparently from size only.

Mr. PENNANT has figured the *H. palustris* as a variety, tab. 86. letter B.

It is subject to a gibbosity on the body whirl, which in some old shells is large and very prominent.

The



The figure of this common species is given, for the purpose of comparing with it, what is considered as the *H. fragilis* of LINNÆUS; for which reason a medium specimen was chosen for the engraving, in order to adapt the size to that of the other.



*Helix fragilis.* *Lin. Syst.* p. 1249.—*Gmel. Syst.* p. 3658.  
*Schroeter Flussconch.* p. 309. t. 7. f. 8?

2.  
FRAGILIS.

Tab. 16. f. 7.

H. with a thin, pellucid, horn-coloured shell, much resembling *H. stagnalis*, but is more slender, particularly in the smaller spires, and the volutions are usually more diaphanous, and always turn more oblique.

There is very little doubt that this is the *H. fragilis* of LINNÆUS, but whether it is really distinct is difficult to determine; all we can say is, that till very lately no shell of such slender growth had ever occurred to us, amongst the *stagnalis*, in the various parts of the kingdom we have taken that shell: and upon a comparison of all the varieties of the *stagnalis* received from our friends, a considerable difference appears, more particularly in the smaller shells, which are much more slender in the superior volutions.

The only place in which this has ever occurred to us, is the canal intended to make a junction of the *Kennet* and *Avon*, between *Chippenham* and *Laycock*, in *Wiltshire*: many, that were collected from that water, were

B b b

all



all of the same slender shape; and in the younger shells, there were, in all we examined, a few opaque white lines, crossing the smaller volutions. The largest measured an inch and a half in length, and not quite three-quarters of an inch wide, in the largest part.

There does not appear to be any material difference between the animals of these two shells; both are of a yellowish colour, with two short, flat, conic *tentacula*, at the base of which the eyes are situated: the sexes too are distinct, as is usual in aquatic *limaces*.

Having said thus much, we must leave to future observations the actual determination, whether it is really distinct or not: in giving it a separate place, we have only followed the example of abler naturalists, but we must confess it admits of some doubt.

The figure given by SCHROETER for the *Linnæan fragilis*, we have quoted, but not without a note of interrogation, as it is not sufficiently taper, or slender in the smaller volutions.

3.  
PALUSTRIS.  
Tab. 16. f. 10.

Helix palustris. *Gmel. Syst.* p. 3658.—*Turt. Lin.* iv. p. 537.  
*Lister Conch.* t. 124. f. 24.  
*Id. Angl.* t. 2. f. 22.  
*Muller Verm.* ii. p. 131. No. 326.  
*Schroeter Flussconch.* p. 308. t. 7. f. 7. 9. 10.  
& 11?—*Hill Swammerd.* p. 73. t. 9. f. 4.  
Helix



*Helix palustris*. *Pult. Cat. Dorset.* p. 48.

*Helix fragilis*. *Muller Verm.* p. 48.

*Helix stagnalis*. *Br. Zool.* t. 86. f. 136. B. (var.)

*H.* with a sub-pellucid, brown, horn-coloured shell, with six spires, tapering to a sharp point; the volutions are a little rounded, but not much elevated, slightly wrinkled longitudinally, and sometimes marked with irregular transverse ridges, particularly on the body whirl: aperture oval, nearly half the length of the shell; outer lip thin; pillar lip replicated, in old shells forming a slight cavity behind; inside glossy purplish-brown, sometimes dark-purple. Length commonly about three-quarters of an inch; breadth three-eighths; but sometimes, though rarely, exceeds an inch in length.

This species is much more slender at the base than the *stagnalis*, and more gradually taper. It is not uncommon in watery ditches, in low swampy situations, in various parts of the kingdom; it does not, however, appear to be so generally known as *H. stagnalis*, and possibly has sometimes been confounded for the young of that species; as was the case with Mr. PENNANT. Doctor PULTENEY's *H. fragilis* is only a variety of this shell, with the volutions rather more rounded, and the *apex* more obtuse. Such are not uncommon, and we are perfectly clear the Doctor's shell is no other, as he favoured us with a specimen.

The *palustris* is generally covered with a dark *epider-*  
B b b 2
*mis,*



*mis*, sometimes almost black, and not uncommonly worn, or decorticated about the *apex*.

We have found it in *Kent, Hampshire, Wiltshire, Dorsetshire, Devonshire, Cornwall*, and other parts.

Animal dark cinereous, speckled with a lighter colour: *tentacula* short, flat, conic: eyes situated at their base.

4.

FOSSARIA.

Tab. 16. f. 9.

*Helix* glabra. *Gmel Syst* p 3658 ?

*Schroeter Flussconch.* p. 320. t. 7. f. 15 ?

*Buccinum glabrum.* *Muller Verm.* ii. p. 135. No. 328 ?

H. with a thin, pellucid, horn-coloured shell, with five or six spires: has much the habit of *Helix palustris*, but not half the size, and the volutions rounder, more deeply divided, and the aperture not so oblong: is also more generally slender, and rarely has any transverse wrinkles. Length three-eighths of an inch; breadth not one half its length.

This species is not uncommon in most parts of the kingdom, in moist places, particularly in muddy ditches, drains, and water-courses, which are frequently dry, in which case the animal perishes; for though it is more amphibious than any other species we are acquainted with, yet it cannot exist without moisture; it is, however, more frequently found at the edge of water, than in  
it,



it, preferring moisture to actual fluid, and is rarely found immersed but in shallow pools, exposed to the sun.

It never creeps up the plants, but always keeps on the mud.

This shell has probably been confounded for the young of the *palustris*, but is generally of a lighter colour, and is rarely, if ever, found with that shell. It is extremely common in some parts of *Devonshire*, and in many other places, where the *palustris* is not to be found: in the southern parts of that county, every little splash, or muddy place by the road side is full of them; but have never found the other in those parts. We have even met with it upon the top of one of the highest hills in *Cornwall*, at the verge of a spring near the *Lizard*, where no other species of shell was to be found.

Animal dusky: *tentacula* two, somewhat compressed, short: eyes on the head, at the base of the *tentacula*.



Helix peregra. Gmel. Syst. p. 3659.—Turt. Lin. iv. p. 537. PEREGRA.

Muller. Verm. ii. p. 130. 324.

Favan. t. 61. E. 4.

Helix putris. Br. Zool. t. 86. f. 137.

Helix atrata. Chem. Conch. ix. t. 135. f. 1244. 1. 2.

Gualt. t. 5. f. C. C.

Schroet. t. 6. f. 3. 6.—t. 7. f. 12?—& t. Min.

C. f. 2.

5.

Tab. 16. f. 3.

H. with



H. with a thin, sub-pellucid, yellowish, horn-coloured shell, with four spires; the first very large and tumid, the others very small: *apex* fine, and pointed: volutions wrinkled longitudinally: aperture extremely large, oval, three-fourths the length of the shell; outer lip thin; pillar lip thickened; inside white, or yellowish: outside usually covered with a thick, blackish, or dusky-brown *epidermis*. Length one inch; breadth five-eighths, usually much less.

This species, the most common of all our fresh-water shells, is frequently confounded with *Helix auricularia*, which is a much more local shell; whereas this is found in most of our slow rivers, and stagnant waters.

Mr. PENNANT has given a good figure of it, and has quoted the *H. putris* of LINNÆUS. We do not however think it is that shell. DA COSTA has quoted PENNANT'S figure, for his *trianfractus*, which is probably the *H. putris* of LINNÆUS.

The animal is perfectly an aquatic species, and is never found to expose itself on the plants out of water. It is of a yellowish colour, with two broad, flat *tentacula*, a little tapering: eyes at the base of the *tentacula*, beneath.

SCHROETER has evidently confounded this shell with *H. auricularia*, and has made other species out of varieties.

Helix



- Helix auricularia*. *Lin. Syst.* p. 1240.—*Gmel. Syst.* p. 3662. AURICULARIA.  
*Chem. Conch.* ix. t. 135. f. 1241. 1242. Tab. 16. f. 2.  
*Gualt.* t. 5. F. G.—*Favan.* t. 61. E. 3. E. 11.  
*Lister Conch.* t. 123. f. 22.  
*Id. Angl.* t. 2. f. 23.  
*Schroeter Flusconch.* t. 6. f. 4. 5.  
*Muller Verm.* ii. p. 126. No. 322.  
*Br. Zool.* t. 66. f. 138.  
*Turt. Lin.* iv. p. 540.  
*Pult. Cat. Dorset.* p. 49.  
*Don. Br. Shells.* ii. t. 51. f. 1.  
*Turbo patulus.* *Da Costa.* p. 95. t. 5. f. 17.

H. with a thin, brittle, sub-pellucid shell, of a light yellow colour, with four spires, the first extremely large, occupying almost the whole of the shell: *apex* very sharp pointed: the largest volution is longitudinally wrinkled, and frequently marked with one deep depression: aperture sub-oval, extremely large; outer lip much extended, thin, and somewhat reflexed, especially at the base; the upper part rises high, is much rounded at the junction, and frequently projects in a right angle; pillar lip replicated; within smooth, yellowish. The outside of the shell is somewhat glossy, but frequently covered with a ferruginous-brown *epidermis*. Length an inch, or more; breadth three-quarters of an inch.

This, and the preceding species, have been in general, confounded for the same; there is, indeed, great similitude between some of the varieties, but the great characteristic



characteristic distinction is, that the second volution of this, is much smaller, and as it were more sunk in the body whirl; the aperture much larger, more expanded, and rising to a shoulder as high as the opposite side of the volution; the body too, is vastly more tumid in general.

This is not near so common a shell, though it is not un plentiful in some parts, in large stagnant pools, and slow rivers. We have found it of a superior size in the the river *Avon*, in the north of *Wiltshire*: and is not uncommon in the *Kennet* in *Berkshire*.

Doct<sup>r</sup> PULTENEY speaks of it as a *Dorsetshire* shell; but we never could find it either in that county, *Devonshire*, or *Cornwall*; where the *H. peregra* is very common.

Animal dull greenish-yellow: head broad: *tentacula* broad, flat, conic, speckled with brighter yellow: eyes placed on the head, at the base of the *tentacula*. Is capable of receding within its shell as much as the *peregra*, and does not cover any part of it when in motion, like the *glutinosa*.

7.

PUTRIS.

Tab. 16. f. 4.

Helix putris. *Lin. Syst.* p. 1249.—*Gmel. Syst.* p. 3659.*Chem. Conch.* ix. t. 135. f. 1248.*Schroeter Erdconch.* p. 128. t. 1. f. 2.*Id. Flussconch.* p. 265. No. 98.*Hill Swammerd.* p. 69. t. 8. f. 4.

Helix



*Helix putris.* *List. Conch.* t. 123. f. 23.—*Id. Angl.* t. 2. f. 24?

*Turt. Lin.* iv. p. 538.—*Gualt.* t. 5. H.

*Helix limosa.* *Pult. Cat. Dorset.* p. 48.

*Helix succinea.* *Muller Verm.* ii. p. 97. No. 296.

*Turbo trianfractus.* *Da Costa* p. 92. t. 5. f. 13.

H. with an extremely thin, pellucid shell, of a reddish-yellow colour, inclining to orange, with three spires; the first very large, making at least four-fifths of the shell; the others of course very small, but the middle one is vastly superior in size to that which forms the *apex*: it is a little wrinkled longitudinally, but glossy: aperture oval, extending two-thirds the length of the shell; outer lip extremely thin, frequently quite membranaceous, and elastic; pillar lip very slightly thickened. Length three-quarters of an inch; breadth not half an inch; but usually not near so large.

It is a very common species in wet places, amongst willows, and sub-aquatic plants: in its first state is greenish-yellow, almost membranaceous, and afterwards becomes more orange. Dead shells are frequently bleached white.

The animal is not an aquatic, though it resides always near water, or in moist places, upon the stalks and leaves of plants; it is, indeed, sometimes found in water, but we consider it more by accident than choice, and soon regains its former station on some neighbouring plant.



This species has been greatly confounded with its congeners, *H. peregra*, and the young of *H. auricularia*, but is at once distinguished by its transparency, and by the form of the body volution, which is very little swelled, and tapers to the second spire without any promi- nency at the junction; and the division, or separating line, runs much more oblique: it is never covered with an *epidermis*, and is more slender in proportion to its length.

CHEMNITZ has given a tolerable good figure of this shell, and quotes the *H. putris* of LINNÆUS; and GMELIN quotes CHEMNITZ's figure for his *putris*.

DA COSTA's description seems to answer tolerably well for this shell, but his figure is more like *H. peregra*, and he has quoted Mr. PENNANT's *H. putris*, which is certainly that shell, not only in figure, but is described to inhabit ponds.

The animal of this has four *tentacula*, situated like the generality of land *limaces*, two long and two short; and the eyes are placed on the top of the longest;\* these  
*tentacula*

\* It is more fully stated in another place that the aquatic species of *limax*, or such as can exist under water, are invariably possessed of two *tentacula* only, and those destitute of eyes at their tips. LINNÆUS, as well as GMELIN, particularly remarks, that the animal of *H. putris* has four *tentacula*; a character sufficient to determine all controversy, for none of the animal inhabitants of the other shells hitherto confounded with this, have more than two *tentacula*, and those differing in shape.



*tentacula* however, are rather short in proportion, and a little clavated at the point; about half way down is a sort of annulation, from which part it suddenly increases in size, and then continues cylindric to the base; these are dusky behind, continuing in a line on each side the head, backwards. The colour of the animal in general, is pale yellowish, spotted with cinereous: it is larger in proportion to its shell, than any other species we are acquainted with, the *H. glutinosa* excepted, not being capable of withdrawing its body within the margin of the aperture.



Helix glutinosa.

Gmel. Syst. p. 3659.

Turt. Lin. iv. p. 537.

Buccinum glutinosum. Muller Verm. ii. p. 129. 323.

Schroeter Flussconch. p. 271. No. 79.

8.

GLUTINOSA.

Tab. 16. f. 5.

H. with an extremely thin, diaphanous, sub-orbicular shell, of a glossy yellowish horn-colour, nearly smooth, or obsoletely wrinkled: volutions three, the first, or body, occupying almost the whole of the shell; the others extremely small, and so little produced, as scarce to be seen when the shell is lying with its mouth upwards: aperture oval, vastly large, extending nearly to the *apex*; no actual duplicature on the inner lip, nor the least inclination to a cavity, or *umbilicus*; but the under part of the body is more opaque and wrinkled, and less glossy for a considerable space from the aperture, than any other part of the shell. Length rather more than half an inch; breadth three-eighths.

C c c 2

This



This species was first noticed as an *English* shell by Mr. Boys, who with his usual liberality, favoured us with several specimens, together with remarks upon its natural history. It is an aquatic species, and not uncommon in the marshes at *Deal*.

The animal is possessed of only two flat, triangular, *tentacula*, with the eyes at the base: and when undisturbed, covers its shell with a fine transparent membrane.

Is found on the leaves of the yellow water lilly, *Nymphaea lutea*.

We are inclined to believe this is a very local shell in *England*, though possibly may have been overlooked as the young of the *auricularia*; from which, however, it is easily discriminated by its almost membranaceous texture, obtuse, and depressed *apex*; as well as being destitute of the *sub-umbilicus* formed by the *repand* lip of that shell: the animal too, is essentially different.

9.  
LUTEA.

Tab. 16. f. 6.

H. with a sub-oval, sub-pellucid, moderately strong, smooth shell, of a dull orange-yellow colour: volutions scarcely three, the first extremely large, the others very small: *apex* obtuse, not prominent: aperture patulous, oval; outer lip not attenuated; inner lip pretty strong, and a little spreading on the *Columella*. Length nearly half an inch; breadth rather more than a quarter.

This



This shell has somewhat the habit of *H. limosa*, but not quite so tumid, and though of inferior size, is always much thicker and stronger. If, indeed, it had ever occurred in fresh-water, we might have been inclined to consider it a variety of that species, but hitherto it has only been found on the sea shore, and that rarely.

We have taken it upon the open part of the coast of *South Devon*, and believe it has been dredged up in *Salcomb* bay, but generally mutilated at the *apex*, and never alive; from which circumstance doubts may be entertained, of its really belonging to that class of shells. All we can say further on the subject at present is, that the substance of the shell is superior to any of its affinities, and the number of volutions inferior to those, to which it bears the greatest resemblance. If the delicate texture of our fresh-water shells was capable of bearing the violent agitation of the sea, and the consequent friction, many would undoubtedly be found on our shores: but this very rarely happens, even in our bays and inlets, and no one instance has ever occurred to us, on the open or more exposed shores, except with the *Helix vivipara*.



*Helix limosa*. *Lin. Syst.* p. 1249.—*Gmel. Syst.* p. 3661.  
*Chem. Conch.* ix. t. 135. f. 1246. 1247.  
*Schroeter Erdconch.* p. 131. t. 1. f. 3.  
*Turt. Lin.* iv. p. 539.

10.  
 LIMOSA.  
 Tab. 16. f. 1.

H. with



H. with a thin, glossy, pellucid, horn-coloured shell, with four spires, the first extremely large and tumid, the others very small, and the *apex* very fine.

This species has so much the habit of *Helix auricularia*, that it is not an easy matter to separate it from the young of that shell. We have, however, followed the very respectable authors above quoted, in giving it a distinct place, though not without some doubts. It rarely exceeds five-eighths of an inch in length, and three-eighths broad.

The only distinction seems to consist in the body, or first volution of this shell, being less ventricose at the junction of the second spire than in the *auricularia*; in being thinner and more transparent, and the mouth not so patulous.

We first received this shell from Mr. Boys of *Sandwich*, where it is not uncommon; and have since found it sparingly in the river *Avon*, in *Wiltshire*.

The shell here described, answers very well to the description and figure given by CHEMNITZ, which GMELIN quotes for the *Linnæan limosa*.

11.

LÆVIGATA.

*Helix lævigata.* *Lin. Syst.* p. 1250.—*Gmel. Syst.* p. 3663.

*Pult. Cat. Dorset.* p. 49.—*Turt. Lin.* iv. p. 540.

*Don. Br. Shells.* iii. t. 105.

*Helix*



*Helix lævigata.* Walk. Min. Shells. f. 17.

Br. Zool. t. 86. f. 139.

*Helix neritoidea.* Chem. Conch. x. t. 165. f. 1598. 1599?

H. with a thin, fragile, sub-pellucid, flesh-coloured shell, with three volutions; the first extremely large, the others very small, very little produced, and placed laterally: *apex* compressed. It is wrinkled transversely, and slightly striated longitudinally or spirally, but always, when alive, covered with a thick, rough, brown *epidermis*, which generally rises into regular, equi-distant, membranaceous, spiral ridges: aperture sub-orbicular, vastly large, margin thin; inside smooth, light purplish-brown; sometimes nearly white: no *umbilicus*.

This appears to be rather a scarce shell, but is found sparingly upon some of our shores. We have taken it by dredging at *Southampton*; and at *Torcross* and *Salcomb* in *Devonshire*: have also found very small specimens on the shore at *Teignmouth*; and at *Falmouth* in *Cornwall*. The largest in our cabinet is three-quarters of an inch in length, or rather more, and five-eighths in breadth; but it is rarely found half an inch long. Mr. PENNANT was mistaken in supposing it to inhabit fresh-water: it is rather a pelagic shell, and seldom taken alive but in deep dredging. Doctor PULTENEY gives it as a *Dorsetshire* shell, and says it was found on the beach at *Studland*. We have also taken it at that place, and have received it, very small, from Mr. BOYS at *Sandwich*, for the species figured by WALKER.

The



The figure given by CHEMNITZ, we have referred to, with doubt, as it appears to be more regularly, and strongly striated longitudinally, and seems to possess a fulcus or groove in the pillar lip, as well as exposing more of the *Columella*: that author, however, quotes WALKER's shell.

If it should be *H. neritoidea* in a depauperated state, it may also be the *Bulla velutina* of MULLER Zool. Dan.

Animal whitish, with two short, setaceous *tentacula*; and two eyes placed at their base behind: *sustentaculum* broad, oval.

12.

DETRITA.

Tab. 11. f. 1.

*Helix detrita*. Pult. Cat. Dorset. p. 49.

Chem. Conch. ix. t. 134. f. 1225. a. d.

Gmel. Syst. p. 3660.—Gualt. t. 5. N.

Muller Verm. ii. p. 101. No. 300.

Turt. Lin. iv. p. 538.

Schroet Erdconch. p. 27. t. 1. f. 1.

Id. Flussconch. p. 324.—t. Min. A. f. 4.

*Helix acuta*. Gmel. Syst. p. 3660. 136.

Turt. Lin. iv. p. 538.—Gualt. t. 4. f. N.

Muller Verm. ii. p. 100. No. 297.

Chem. Conch. ix. t. 134. f. 1224. No. 1. 2.

Favan. t. 65. A. 5.

H. with a sub-pellucid, conic shell, tapering to a moderately fine point: volutions fix, not much elevated, but a little rounded, and well defined by the separating line:



line: colour white, somewhat glossy, a little wrinkled longitudinally, and commonly marked with one ferruginous band, or *fascia*, round the middle of the body, continuing spirally up the shell, at the base of the other volutions, but fainter, and lost in the fourth spire: aperture oval; outer lip thin; inner lip a little reflected on the *Columella*, forming a small cavity, or *sub-umbilicus*. Length three-quarters of an inch; breadth three-eighths.

This species appears to be subject to considerable variety with respect to the bands; some have three *fasciæ* on the body, the middle one of which is very narrow, the others broad: the second volution has one, and sometimes two; the other spires are covered by the band, except at their junction. Others have the *fasciæ* broken into longitudinal streaks; which, as well as the banded specimens, are frequently faint and obsolete on the under part, in the line of the mouth.

Doct<sup>r</sup> PULTENEY states this shell to have been found near *Weymouth*, by Mr. BRYER. We have been favoured with specimens from that gentleman, who at the same time informed us, he found them in a pool near *Weymouth*, and in a stream near *Dorchester*; but rare in both places; and that all the *English* specimens, he had seen, were destitute of bands.

These are not so white and opaque as foreign shells, but rather inclining to light horn-colour; are thinner;

D d d

and



and more diaphanous: and when the animal is suffered to remain within the shell, it contracts, and gives a darker colour to the superior volutions.

It is certainly a very rare species, or so large a shell could not have so long escaped notice.

The *H. acuta* figured by CHEMNITZ, which he states to be found in *Italy*, appears to be only a variety of the *detrita*.

GMELIN has considered them as distinct; but has fallen into an error in quoting *Lister Conch.* t. 19. f. 14. the *Turbo fasciatus* of this work, which is perfectly distinct, and does not seem to have been known to LINNÆUS. MULLER has made the same mistake. DOCTOR PULTENEY had certainly considered the *H. detrita* and *acuta* as only varieties, as he quotes both those shells figured by CHEMNITZ.

13.

VIVIPARA.

*Helix vivipara.* *Lin. Syst.* p. 1247.—*Gmel. Syst.* p. 3646. 105.  
*Chem. Conch.* ix t. 132. f. 1182. to 1185.  
*Petiv. Gaz.* t. 99. f. 16.—*Gualt.* t. 5. A.  
*Lister Conch.* t. 126. f. 26.—*Id.* tab. *Anat.*  
 f. 6.—*Id. Angl.* t. 2. f. 18.  
*Schroeter Flussconch.* t. 8. f. 1. 2.—& t. *Min.*  
 C. f. 6.—*Favan.* t. 61. D. 9.  
*Br. Zool.* t. 84. f. 132. & t. 85 upper fig.  
 (young.)—*Don. Br. Shells.* iii. t. 87.

Helix



*Helix vivipara.* Turt. Lin. iv. p. 528.

Hill Swammerd. p. 75. t. 9. f. 13.

Pult. Cat. Dorset. p. 48.

*Helix compactilis.* Id. p. 48. (young.)

*Cochlea vivipara.* Da Costa. p. 31. t. 6. f. 2. 2.

*Nerita vivipara.* Muller Verm. ii. p. 182. No. 370.

H. with six ventricose spires, separated by a deep, depressed line: shape sub-conic, suddenly terminating in a small point: colour olive-green, with three brown *fasciæ* on the body, and two on the superior volutions, growing fainter, and becoming obliterated before they reach the fourth spire: it is slightly wrinkled transversely, with two or three stronger, and coarser than the rest, that seem to mark the annual growth of the shell: aperture sub-orbicular, contracted a little at the upper part; pillar lip reflected, behind which, in some, is a *sub-umbilicus*; inside smooth, white, banded like the outside. Length rarely an inch and a half; breadth one inch.

DA COSTA is certainly mistaken, in saying this shell is found in great abundance in all our rivers and stagnant waters; for except in the *Thames*, and other waters communicating with that river, we have never found it. In the neighbourhood of *Reading*, near the junction of the *Kennet* with the *Thames*, and in streams, and water-courses about that place, it is in vast abundance; but becomes scarce farther up the former river, and is wholly lost before it reaches *Newbury*.



The same author has also erred in calling the *operculum* of this shell testaceous, for it is of a flexible, corneous substance, wrinkled concentrically, and of a pellucid, reddish-brown colour.

The animal is viviparous, and very prolific; we have taken a great number of young ones from the larger shells, each with their testaceous covering and *operculum*.

Shells, not half grown, have the spires less produced, and their volutions not so tumid; in which state it has been taken for a distinct species; and we consider the *H. compactilis* of Doctor PULTENEY, and the shell figured by Mr. PENNANT, without number, in plate 85, to be no other.

The *vivipara* is the strongest fresh-water shell in *England*, capable of bearing, for a time, the rude actions of the sea; so that it is sometimes found on our more exposed shores; we have dredged it up from the deep at *Torcrofs*, inhabited by *Cancer Bernardus*. The most contiguous river is the *Dart*, at the distance of six miles, apparently too rapid for such shells: possibly they inhabited a lake of fresh-water contiguous, which a few years since broke its bounds, and made a temporary junction with the sea: it has not, however, occurred in any of the rivers in *Devonshire*.



*Helix tentaculata.* *Lin. Syst.* p. 1249.—*Gmel. Syst.* p. 3662. TENTACULATA.

*Chem. Conch.* ix. t. 135. f. 1245.

*Lister Conch.* t. 132. f. 32.—*Id. Angl.* t. 2. f. 19.

*Petiv. Gaz.* t. 18. f. 8.—*Gualt.* t. 5. B.

*Schroeter Flussconch.* t. 7. f. 19. to 22.

*Br. Zool.* t. 86. f. 140.

*Turt Lin.* iv. p. 539.

*Hill Swammerd.* p. 82. t. 10. f. 1?

*Pult. Cat. Dorset.* p. 49.

*Don Br. Shells.* iii. t. 93.

*Walk. Min. Shells.* f. 33. (pullus)

*Helix sphaerica.* *Gmel. Syst.* p. 3627.

*Turbo Nucleus.* *Da Costa.* p. 91. t. 5. f. 12.

*Nerita Jaculator.* *Muller Verm.* ii. p. 185. No. 372

*Nerita sphaerica.* *Muller Verm.* ii. p. 170. No. 356. (pullus)

*Schroeter Flussconch.* p. 341. No. 82.

H. with a smooth, conic, pellucid, horn-coloured shell, with five, and sometimes six, rounded spires, divided by a deep separating line: *apex* pointed: aperture sub-orbicular, contracted at the upper part; outer lip moderately strong; pillar lip reflexed. *Operculum* testaceous, concentrically wrinkled. Length half an inch; breadth a quarter.

This is a very common species, found in most flow rivers, and stagnant waters. Is frequently covered with a dark-brown, or dusky *epidermis*: sometimes with a calcareous concretion. Dead shells become white. It is, we believe, the only species of *British* fresh-water shells



shells that possesses a testaceous *operculum*, except the *Nerita fluviatilis*.

The *sphærica* of MULLER is certainly no other than a young, and more ventricose variety of this shell; such are not uncommon, perfectly white. WALKER has fallen into the same mistake, his figure 33, being no other than the young of the *H. tentaculata*; of which we are confident, having received his shell from Mr. BOYS.

Animal pale, with two very long, slender, setaceous *tentacula*, which are continually in motion; at the base of these, are situated the eyes, which are protuberant.

15.  
LUBRICA.

- Helix lubrica. Gmel Syst p. 3661. 142.  
 Turt. Lin. iv. p. 539.  
 List. Angl. t. 2. f. 7.  
 Petiv. Gaz. t. 30. f. 7.  
 Chem. Conch. ix. t. 135. f. 1235.  
 Morton Northamp. p. 415 ?  
 Muller Verm. ii. p. 104. No. 303.  
 Schroeter Erdconch. p. 141. t. 1. f. 9.  
 Helix Stagnorum. Pult. Cat. Dorset. p. 49.  
 Turbo glaber. Da Costa. p. 87. t. 5. f. 18.

H. with a smooth, glossy, pellucid, horn-coloured shell, with six spires very little rounded, and not much raised, but well defined by the separating line: *apex* rather obtuse: aperture oval; outer lip rather thick, but  
 not



not margined or reflexed, and generally of a reddish-brown colour; inner lip replicated; no teeth, nor *umbilicus*. Length a quarter of an inch; breadth one third its length.

This species is not uncommon in moist woods, ditch banks, and shady places; especially under decayed wood, or timber that has lain some time on the ground; it seldom ascends the trunks of standing trees, or even the stalks of grass or other vegetables, but resides chiefly on the ground. Is at once distinguished, when alive, by its extreme glossiness; but dead shells frequently become white and opaque.

It was known to Doctor SOLANDER, and was probably first named by him *H. lubrica*, as he sent it to Mr. BOYS under that denomination.

Animal dusky: *tentacula* four, clavate; eyes placed at the ends of the two longest.



16.

*Helix obscura*. *Gmel. Syst.* p. 3661. 141.

OBSCURA.

*Turt. Lin.* iv. p. 539.

*Muller Verm.* ii. p. 103. No. 302.

*Favan.* t. 65. F.—*Walk. Min. Shells.* f. 41.

*Turbo Rupium*. *Da Costa* p. 90.—*List. Angl.* t. 2. f. 8.

H. with a sub-cylindric, sub-conic, opaque, brown, horn-coloured shell, with from five to seven spires, somewhat



what rounded, and well defined by a deep separating line: volutions sub-striated, or rather wrinkled longitudinally: *apex* rather obtuse: aperture oval, marginated, white, reflexed; behind the pillar lip a groove or *sub-umbilicus*. Length three-eighths of an inch; breadth more than one third its length.

This species inhabits the same places as the preceding, especially moist woods; and frequently ascends the trunks of trees. It differs from that shell in being larger, not so taper, by its dull, opaque, brown colour, and wrinkles; and particularly by its white, marginated, and reflexed aperture.

We originally received this from Mr. Boys, for WALKER's shell referred to, who says it is found at *Faversham*; the figure, however, given in the *Minute Shells*, is vastly too large, unless it is intended for a magnified engraving.

We have found it in a moist wood at *Lackham* in *Wiltshire*, on the trunks of smooth-barked trees, such as ash and hornbeam, not uncommon; and rarely in *Devonshire* in dry banks. It also affects high situations, for we observed them in considerable abundance, and of superior size, upon the top of the highest part of *Portland* island, under stones.

That it is not a common shell is certain, but must be considered as more local than rare, though it is by no means generally known.

If



If this should be LISTER's shell, of which there is very little doubt, we are informed it is found in the rocky parts, over the torrents about *Cravan* in *Yorkshire*. DA COSTA quotes the *Philosophical Transactions*, No. 105. fig. 8.---WALLACE *Ork.* p. 39.---and MORTON *Northamp.* p. 415. for his *Turbo Rupium*; and it is probable they belong either to this, or to the *Helix lubrica*, but we are in doubt to which the synonyms should be placed.

The *obscura* in its young state, or before the mouth is formed, has much the appearance of a pyramidal *Trochus*. In this state we suspect SCHROETER in his *Erdconchylien*, has described it, p. 141. tab. 1. fig. 8. and which MULLER afterwards described under the title of *Helix ventricosa*, p. 102. No. 301. and GMELIN p. 3661.

Animal pale-brown; beneath lighter: *tentacula* four: eyes placed at the tips of the two longest.



*Helix subcylindrica.* *Pult. Cat. Dorset.* p. 49.

*Lin. Syst.* p. 1248?

*Gmel. Syst.* p. 3652. 118?

17.

SUBCYLINDRICA

H. with a cylindric, imperforated, sub-pellucid, light chestnut-coloured shell, with four spires, terminating in an obtuse, smooth, button-like whirl, as if truncated; the volutions a little rounded, and well defined by the separating line, furnished with close-set, rib-like, longitudinal striae, in some the whole length; others princi-

E e e

pally



pally apparent in the futures: aperture oval; outer lip thick, but not marginated; pillar lip replicated. Length a quarter of an inch; breadth one third its length.

On the authority of Doctor PULTENEY we have given this shell as *English*, who says it is found on water plants in rivers and ponds.

We cannot, however, help expressing some doubts that the Doctor has been deceived; as the specimens he favoured us with, appear to be a foreign variety of our *Turbo truncatus*, which is a marine shell; and from which it differs in nothing but being rather larger, of a deeper colour, and usually more strongly striated.

It is not uncommon amongst the smaller shells from the *West Indies*; but whether it is the *sub-cylindrica* of LINNÆUS, which is quoted by the Doctor, we are not quite clear.



18.

LACKHAMENSIS. H. with a sub-pellucid shell, of a dull, rusty-brown  
 Tab. 11. f. 3. colour, wrinkled longitudinally: volutions seven, almost flat, but well defined by the separating line; the first three or four larger spires are sub-cylindrical, the rest more suddenly taper to an obtuse point: aperture sub-oval, marginated, reflexed, whitish, with frequently a purple tinge; inner lip scarcely thickened on the body,  
 the



the lower part reflecting much, forming a considerable linear cavity, or *sub-umbilicus*: no teeth. Length five-eighths of an inch, or rather more; breadth a quarter.

This shell sometimes varies to horn-colour, and cinereous, but most commonly of a rusty, or rufous-brown. It appears to be rare, or at least a very local, non-descript species.

We first found it in a moist wood at *Lackham* in *Wiltshire*, in one small spot only, adhering to the trunks of ash and hornbeam trees; and afterwards tolerably plentiful in the woods belonging to the Marquis of *LANS-  
DOWN*, at *Bow Wood*, in the same county, not very distant from the former place; and in no other part.

It seems to be a long time arriving at maturity, for scarce one out of ten has the mouth perfectly formed. In its infant state, when it has only four or five spires, it has much the appearance of a conic *Trochus*; and the aperture is somewhat quadrangular.

It has much the habit of *H. obscura*, but is more than double the size of that shell, and the exterior lip turns rather more outwards.

Animal pale, lightest beneath: *tentacula* four, clavate: eyes placed at the tips of the longest.



H. with a pellucid, horn-coloured shell, with seven or eight smooth, or very finely wrinkled, slender spires, gradually tapering to a fine point: the volutions are rather flat, but well defined by a considerable depressed line: aperture oval; outer lip very thin; pillar lip reflexed. Length above five-eighths of an inch; breadth two-tenths of an inch.

This is usually covered with a dusky-black *epidermis*, which wholly obscures the shell, and is very difficult to remove. It is a rare, or at least a very local species; and is probably the shell mentioned by Mr. PENNANT: but is not the *H. octona* of LINNÆUS.

It is properly an aquatic species, but is probably somewhat amphibious, like *Helix fossaria*, preferring moisture at particular seasons, to actual fluid.

We have hitherto found it only in one part of *England*, a splashy place by the road side, half way between *Fowey* and *Looe* in *Cornwall*, where they were plentiful in all stages of growth: the young are less slender, and have only five or six volutions. Some of these we put into a glass of water, where they lived for some weeks, but generally crawled up the side, and seemed restless till they got out of that element, though continued to live when confined at the bottom: some put into wet  
moss



moss lived a great while, others put in a dry place very soon died.

This is not the shell described by Doctor PULTENEY for the *H. octona* of PENNANT; his is the true *Linnæan octona*.

The Doctor favoured us with a specimen of his shell; and we think he must have been deceived with regard to its being *English*. It is a much more slender shell than this, terminates in an obtuse point, and the volutions are more rounded, and glossy white, or very light horn-colour. In the aperture too it is essentially different, being sub-orbicular; the pillar lip turns inwards at the base, and forms a contraction, nearly allied to the *Buccinum* genus; the length is five-eighths of an inch; and not more than one eighth broad at the base. CHEMNITZ seems to have figured this shell, vol. ix. tab 136. fig. 1264. and his description answers very well, but he does not quote the *H. octona* of LINNÆUS, but calls it, *Helix octona Indiæ occidentalis*.

We have also received it from the *West Indies*.

GMELIN quotes CHEMNITZ's figure for the *Linnæan octona*, which is not the least like our shell: and also a minute shell given by SCHROETER in his *Flussconchylien* tab. 8. fig. 6. which is undoubtedly the *Buccinum terrestre* of this work, and not at all like either.

Animal



Animal dusky, with two short flat *tentacula*, at the base of which the eyes are placed.

20.  
POLITA.

|                       |                                                                                |
|-----------------------|--------------------------------------------------------------------------------|
| Helix polita.         | <i>Pult. Cat. Dorset.</i> p. 49.                                               |
| Turbo politus.        | <i>Gmel. Syst.</i> p. 3612.<br><i>Turt. Lin.</i> iv. p. 501.                   |
| Turbo lævis.          | <i>Br. Zool.</i> No. 115. t. 79. (upper fig.)<br><i>Turt. Lin.</i> iv. p. 497. |
| Strombiformis glaber. | <i>Da Costa</i> p. 117.                                                        |
| Smooth white whelk.   | <i>Borlase Cornwall</i> p. 277.?                                               |

H. with a strong, white, and extremely glossy shell, perfectly smooth, without wrinkles or striæ: volutions from nine to thirteen, depending on age and size; quite flat, and scarcely defined by any separating line; slender, and gradually tapering to a sharp point: aperture oval, forming an acute angle, or contraction, at the upper end; outer lip rather thick, but not margined, or reflexed; inner lip replicated. Length five-eighths of an inch, usually less; breadth two-tenths of an inch.

This species is found rarely on the western shores; DA COSTA says *Exmouth* in *Devonshire*; and Doctor PULTENEY speaks of it in *Dorsetshire*, but not common.

We have found it sparingly in *Cornwall* and *Devonshire*, the largest of which was taken from the stomach of an *Actinea pedunculata*: minute specimens are sometimes found on *Oysters* and *Scallops*. In this infant state they



they are of exquisite polish, and when the animal is alive, frequently appear mottled with pink and pale-green: are also somewhat arcuated, and very seldom found perfectly straight.



21.

H. with a slender, white shell, with eight or nine DECUSSATA. spires tapering to a fine point; volutions very little Tab. 15. f. 7. raised, and the separating line extremely fine; these are strongly, and regularly striated in a longitudinal direction, crossed by very minute striæ, that gives it a slight decussated appearance, when examined by a lens: aperture narrow, suboval, contracted at both ends; outer lip somewhat expanded, and a little thickened at the back; inner lip a trifle replicated. Length three-tenths of an inch; breadth one tenth.

In shape this shell is similar to *Helix polita*, except in the aperture, which stands rather more oblique, the outer lip more expanded in the middle, and contracted at the lower angle.

We have been favoured with this new and elegant species more than once, by Mr. BRYER of *Weymouth*, accompanied with an assurance, that he found them at different times, on the shore, between that place and *Portland* island.

Turbo



## LABIOSA.

Tab. 13. f. 7.

Turbo costatus.

*Pult. Cat. Dorset.* p. 45.

Turbo albus.

*Br. Zool.* No. 114. t. 79?*Turt. Lin.* iv. p. 497?

Turbo membranaceus.

*Lin. Trans.* v. p. 2. t. 1. f. 14. 15.(Adams)—*Turt. Lin.* iv. p. 500.

Strombiformis albus.

*Da Costa,* p. 116?

H. with a sub-conic, sub-pellucid, light horn-coloured shell, with seven, and rarely eight, flattish spires, terminating in a fine point, and furnished with from fifteen to eighteen faint ribs, on the three largest whirls; the superior volutions smooth: *apex* frequently purplish: aperture oval, lips thickened within, white; the margin of the outer lip thin, a little reflexed, and usually of a purplish-brown; the back of the outer lip a little gibbose, and generally whiter than the rest of the shell; pillar lip spreads considerably on the body whirl; *Columella* within undulated, forming a small elevation, like an obsolete tooth.

The aperture is a strong character; it is nearly half the shell, and consequently makes the body volution proportionally large; it stands a little oblique, considerably expanded at the margin, which is reflexed, and is contracted in the throat by the thickening of the shell.

A variety is much more thin and pellucid, some quite destitute of ribs; others only partially ribbed on the upper part of one or two of the largest volutions; these are frequently streaked longitudinally with brown, sometimes



times in an undulated manner: such are usually larger, and not so thick in the lips, but the margin of the aperture is equally repand.

It is observable in all these shells, the back of the body volution is invariably destitute of ribs, and the inside of the mouth in fresh shells, extremely glossy: the spires too, are very little raised, and the line of separation very fine, which in worn shells, scarce mark them: such are frequently found quite white. Live specimens are covered with a yellowish-brown *epidermis*.

Length rather more than a quarter of an inch; breadth nearly one half its length.

This species is not uncommon in *Cornwall*, particularly about *Falmouth*; and is equally plentiful on the south coast of *Devonshire*, and *Dorsetshire*; and the smooth variety at *Southampton*. Have also found it more sparingly, about *Biddesford* in the north of *Devon*, and on the south coast of *Wales*.

In our communications with our late worthy friend Doctor PULTENEY, we sent him this shell, which he acknowledged to be his *Turbo costatus*, and consequently clearly proved that he had fallen into an error, in quoting the *Turbo parvus* of DA COSTA: possibly, however, he has been right in quoting *Strombiformis albus* of the same author, for we find he was not singular in

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that



that opinion, as this shell is not uncommonly considered as such, by collectors.

It was figured in *Triton Britannicus*,\* where we observed that name affixed to it, and which the Doctor also refers to.

In quoting DA COSTA we confess, it is more from popular opinion than from our own, if his description is to be attended to: the smooth variety of this shell is, indeed, when worn and bleached, milk white, glossy, and the spires are nearly level, or not prominent beyond one another, only separated by a flight furrow. To this part, therefore, of DA COSTA's description it would in that state somewhat accord; but we cannot conceive, how it could be placed in the genus *Strombiformis*, or *Needle Snails*, of that author, the characters of which are "very long, slender, and taper in shape." In his specific description, however, he says, "of a taper shape, "not slender, but very swelled, or bodied."

The *Turbo membranaceus* of Mr. ADAMS, we have very little doubt, is the lineated variety of this shell, which is not unfrequently met with, exactly corresponding with the description given by that gentleman, except in the number of spires, which is known to vary with age:

\* An intended work on Conchology with this title, never appeared before the public: Doctor PULTENEY quotes it as a M. S. and informs us, it is a new impression of DA COSTA's plates, with seven additional tables.



age: his figure is much too slender, an error his draftsman has not unusually fallen into, in those representing the natural size.



23.

H. with a strong, conic, opaque, dark, purplish-brown PETRÆA. shell, with five spires; the first large, occupying nearly two-thirds of the length; the superior ones small: *apex* sharp, pointed: the volutions are very little raised, but sufficiently defined by the separating line, which, in the future of the body whirl, rises upon the base of the superior volution, with a slight, abrupt, ragged edge, and does not turn inwards and become lost, as is usual with most shells, at the junction of the spires: it has no regular striæ, but is wrought with faint, irregular wrinkles, across the volutions, which, in the under part of the body, above the mouth, is worn quite plain: aperture lunated; outer lip considerably projecting, margin attenuated; pillar lip smooth, flat, and partly spread upon the body whirl, in a diagonal line, the whole length of the aperture; this, as well as the inside, and the *operculum*, (which is of a corneous substance,) is of a deep, glossy purple: the inner lip is straight, and brought to an edge, as in many of the *Nerites*, but the mouth does not stand sufficiently transverse to claim a place in that genus; and, indeed, the *apex* is more produced than is usual in that tribe. Length rather more than a quarter of an inch, but never so much as three-eighths, of which

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the



the aperture extends full one half; breadth two-tenths of an inch.

A variety is irregularly streaked, or blotched with rufous, or white, on the upper part of the larger volution, but the smooth part of the pillar lip, and inside, are invariably of the same dark-purple colour.

This species, which at present appears to be a non-descript, may possibly have been confounded for the fry of some of the larger littoral shells; though, on close examination, will be found to be essentially different from any *British* species, hitherto noticed; the mouth, alone, being a strong specific mark of distinction; and if attentively examined, will always prove an unerring guide.

We have, as yet, only met with it on the south coast of *Devon*, near the mouth of the river *Aun*, not far from the village of *Bantum*, adhering to the rocks, a little beneath high water-mark; and there in no inconsiderable abundance: and less plentiful in a similar situation at *Swanage* in *Dorsetshire*.

Upon a cursory view, it may be mistaken for *Turbo tenebrosus*, being nearly the same size, and colour; the shape, however, is not only very different, but the smallest attention to the aperture, and a comparison of the description of each, will prevent their being confounded.

\*\*SUB-



**\*\*SUB-GLOBOSE, OR DEPRESSED; APEX PRODUCED.**

24.

Helix Pomatia. *Lin. Syst.* p. 1244.—*Gmel. Syst.* p. 3627. POMATIA.

*Chem. Conch.* ix. t. 128. f. 1138.

*Id.* ix. t. 108. f. 908. to 912. var. reversed.

*Lister Conch.* t. 48. f. 46.—*Id. Angl.* t. 2. f. 1.

*Br. Zool.* t. 84. f. 128.—*Gualt.* t. 1. A.B.C.

*Schroeter Erdconch.* p. 145. t. 1. f. 10.

*Da Costa.* p. 67. t. 4. f. 14.

*Favan.* t. 63. D. 1?—E. var. reversed.

*Hill Swammerd.* p. 65. t. 4. f. 2. 3.

*Pult. Cat. Dorset.* p. 47.

*Turt. Lin.* iv. p. 513.

*Don. Br. Shells.* iii. t. 84.

*Muller Verm.* ii. p. 43. No. 243.

Helix Pomaria. *Muller Verm.* ii. p. 45. No. 244. var. reversed

H. with a sub-globose, moderately strong, sub-pellucid shell, with five rounded volutions, strongly wrinkled longitudinally: colour yellowish-brown, commonly with three faint *fasciæ* on the body, one of which continues round the second spire: aperture semi-lunated, margin rather thickened, and turns a little outwards; pillar lip much reflected over the *umbilicus*. Diameter about two inches.

This is the largest species of land shells, found in *England*; is subject, like the common garden snail, to much variety in colour; some are nearly white, with scarce



scarce any appearance of bands. It is not an aboriginal species of this kingdom, but was first introduced about the middle of the sixteenth century, either as an article of food, or for medicinal purposes. Is supposed they were first imported from *Italy*, and turned out in *Surry*, by a Mr. HOWARD at *Albury*; where they encreased prodigiously, and are by far the most common species about *Ashted*, *Boxhill*, *Leatherhead*, *Darking*, and the neighbouring parts.

It is also said that Sir KENELM DIGBY dispersed them about *Gothurst*, near *Newport Pagnal*, in *Buckinghamshire*, where they did not thrive much. Mr. MORTON informs us, some were turned out by Lord HATTON at *Kerby* in *Northamptonshire*, but that they did not encrease.

They are commonly used as food in many parts of *Europe*, especially during Lent; and are preserved and fattened for that purpose; but we do not find they grow to that size spoken of by VARRO, who says the shells would hold ten quarts. They were a favourite dish with the *Romans*, who had their *Cochlearia*, or nursery, and fattened them (as we are told) with bran and foddren wine.

It has been found according to DA COSTA, in *Oxfordshire*, about *Woodstock* and *Blanden*: in *Gloucestershire* about the parish of *Chedworth*; and in *Dorsetshire*.

Doctor



Doct<sup>r</sup> PULTENEY, however, observes he never found it in this last county. Doct<sup>r</sup> LISTER says in *Hertfordshire*, about *Ware* and *Puckeridge*.

We have received it from *Kent*; and once found a single specimen near *Devizes*, in *Wiltshire*; which, with those mentioned in *Gloucestershire*, seems to be their furthest northern limits at present.

By some, it is said to possess a testaceous *operculum*; if so, it is only prepared for security in the torpid season, and is cast off as soon as the animal is restored to locomotion: for no such appendage is to be discovered during the summer months.

Most authors, however, speak of the *operculum* as like chalk or plaster; and that it is composed of two or three *laminæ* of different degrees of hardness; but not testaceous. That it is not of a shelly nature, there can be no doubt, for in all such shells, furnished with a testaceous *operculum*, it is as much fixed to the animal as any other part, and is never deciduous; whereas, the animal of the *Helix Pomatia*, throws off the covering of the aperture of its shell, as soon as it issues from its *hybernaculum*.



*Helix aspersa*. Gmel. Syst. p. 3631. 58.

Muller Verm. ii. p. 59. No. 253.

25.

ASPERSA.

*Helix*



- Helix aspersa.* *Chem. Conch.* ix. t. 130. f. 1156. 1158.  
*Lister Conch.* t. 49. f. 47.—*Id. Angl.* t. 2. f. 2.  
*Petiv. Gaz.* t. 65. f. 4.—*Turt. Lin.* iv. p. 515.  
*Favan.* t. 63. D. 2. 3. 4.  
*Don. Br. Shells.* iv. t. 131.
- Helix hortensis.* *Br. Zool.* t. 84. f. 129.  
*Turt. Lin.* iv. p. 529.  
*Nat. Miscel.* t. 30.
- Helix Lucorum.* *Pult. Cat. Dorset.* p. 48.
- Cochlea vulgaris.* *Da Costa.* p. 72. t. 4. f. 1.

H. with a sub-globose shell, with four volutions, the superior ones placed somewhat laterally: aperture semilunar, rather elongated, margin reflected, white: no *umbilicus*. Diameter scarce an inch and a half.

It varies much in colour and markings, but is usually white, with *fasciæ* of dark brown, which are frequently broken, and appear mottled all over, with purplish-brown and white; some are entirely of a dull yellow-brown, without *fasciæ* or streaks.

An accidental variety, with the volutions turning the contrary way, was found by Doctor LATHAM at *Dartford*: and we observed in the cabinet of Mr. SWAINSON, another variety, with the volutions vastly extended and detached, in a singular spiral form, like a screw.

At the approach of winter, the animal forms a covering to the aperture, or an *operculum* of a coriaceous substance, composed of many coats or folds; which it  
retains



retains during its torpid state; but is thrown off on the return of summer, as soon as its locomotive faculty is restored.

It may be expected in the history of this animal, so long celebrated for acting the part of Cupid in its amours, that something should be said upon a subject so singular and extraordinary.

So much, however, has been already written by different authors on the loves of *Snails*, which requires more than common faith to credit; that we must beg to refer our curious readers to the more recent accounts of the actions of *Snails* in love, given in the first volume of the *Naturalist's Miscellany*; where the author very properly prepares the reader for the belief of such wonders, by saying, "I must request my readers to summon all their philosophical faith to receive the surprising particulars."

That the hermaphroditical animal of the *Helix aspersa*, as well as *H. nemoralis*, (or at least some of them,) possess small testaceous *spiculi* at certain seasons, must be admitted; but that they are missile darts, we have much reason to doubt, though it is natural to suppose the animals are furnished with them, for the purpose of stimulating each other to love, because it is only at that season they are found to possess them. If such are ever discharged at each other, we have been extremely unfortunate in our observations, for in no one instance, could

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we ever find the dart penetrated; though at the time the animals are close, the point may irritate: but it is neither sufficiently strong, nor sharp-pointed, to penetrate the tough skin with which these animals are furnished; and, indeed, the extremely viscid secretion, with which they are so copiously provided, adheres so strongly to these *spiculi*, when wholly projected from the body, that they are for a time held by it. Perhaps we may be told hereafter, that this tough excretory fluid is used as a cord to regain these darts after they have been discharged: but such we should hold equally fabulous, with much of the accounts related by various authors.

These celebrated love-darts are sub-pellucid-white, and very brittle, about a quarter of an inch, or three-eighths in length, and somewhat triangular, like the blade of a small sword.

Some authors seem to have considered this as the *Helix Lucorum* of LINNÆUS, but it certainly admits of much doubt. GMELIN did not think so, for he has given all the synonyms of this shell to his *H. aspersa*; and has made his *H. Lucorum* a very different shell; a figure of which is given in LISTER'S *Conchology*, tab. 1058. fig. 1.

Doctor TURTON has confounded the synonyms of the *aspersa* with those of the *hortensis*, not considering the former as an *English* shell, and therefore has quoted this  
shell



shell of LISTER, PENNANT, and DA COSTA, for the  
*hortensis*.

26.

*Helix nemoralis*. *Lin. Syst.* p. 1247.—*Gmel. Syst.* p. 3647. NEMORALIS.

*Chem. Conch.* ix. t. 133. f. 1196. 1198.

*Id.* t. 109. f. 924. var. reversed.

*Lister Conch.* t. 57. f. 54.

*Id. Angl.* p. 117. var. 2. to 9. t. 2. f. 3.

*Br. Zool.* No. 131.—*Favan.* t. 63. H.

*Don. Br. Shells.* i. t. 13.

*Born.* p. 384. 385. t. 16. f. 3. 8.

*Muller Verm.* ii. No. 246. p. 46.

*Hill Swammerd.* p. 70. t. 8. f. 5.

*Pult. Cat. Dorset.* p. 48.

*Turt. Lin.* iv. p. 529.

*Petiv. Gaz.* t. 91. f. 9. to 12.—*Id.* t. 92.

f. 9. 10.—*Gualt.* t. 1. P. & Q. left hand.

*Schroeter Erdconch.* t. 1. f. 13. to 17.—t. 2.

f. 28. 29. 30.

*Cochlea fasciata*. *Da Costa.* p. 76. t. 5. f. 1. 2. 3. 4. 8. 14. 19.

H. with a sub-globose, sub-pellucid shell, with five volutions of various colours; most frequently yellow, or reddish, fasciated with dark chocolate-brown, from one to five in number on the body, but rarely two; those with five bands have the two uppermost much smaller than the rest. In some the *fasciæ* are very broad; others have a single narrow zone throughout the volutions, on a bright yellow ground; sometimes plain yellow, red, or dull purplish-brown; but in all varieties the

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inner



inner margin of the lip, the edge, and pillar lip are invariably of a dark colour.

The aperture is lunated; base imperforated. Greatest diameter not quite an inch.

This is one of the most common species in our woods, hedges, and shady places.

We have observed similar *spiculi*, or amorous darts, to those of *Helix aspersa*, issuing from this species, in the month of May.

27.

HORTENSIS.

*Helix hortensis*. *Gmel. Syst.* p. 3649. 109.

*Cham. Conch.* ix. t. 133. f. 1199. 1201.

*Mul. Verm.* p. 52. No. 247.

*Lister Angl* p. 117. No. 1.

*Born.* p. 385. t. 16. f. 18. 19.

*Gualt.* t. 1. Q. right hand.

*Schroeter Erdconch.* t. 2. f. 27.

H. with the shell in every respect like the preceding species, but considerably less, and invariably with a white margin to the aperture. It is subject to nearly all the varieties of the *H. nemoralis*, except that of red, or flesh-colour. Greatest diameter three-quarters of an inch.

Various have been the opinions concerning this shell; MULLER and BORN have considered it as quite distinct from



from the *H. nemoralis*, and have given the white lip as an invariable character.

GMELIN and CHEMNITZ have expressed a doubt.

To this subject we have paid considerable attention, by collecting these shells from different parts of the kingdom; and have invariably found the smaller shells with the white lip, and the larger with a brown margin to that part; and have never yet found the red or flesh-coloured variety with the former. It has been conjectured, that this shell is only the young of the other, but the perfect formed mouth precludes all such idea: it is also much less common, which would not be the case if it was the young of the *nemoralis*, and the red variety would equally occur. From these circumstances we are inclined to believe, they are perfectly distinct.

That they are full grown shells is evident from the structure of the lip; for the *nemoralis* is larger before the lip is formed: and we cannot think it an accidental variety in a depauperated state, because neither of their mouths ever vary.

28.

Helix Arbuftorum. *Lin. Syst.* p. 1245—*Gmel. Syst.* p. 3630.53. ARBUSTORUM.

*Chem. Conch.* ix. t. 133. f. 1202.

*Muller Verm.* ii. p. 55. No. 248.

*Lister Conch.* t. 56. f. 53.

*Id. Angl.* t. 2. f. 4.

Helix



*Helix Arbuſtorum.* *Br. Zool.* t. 85. f. 130.

*Don. Br. Shells.* iv. t. 136.

*Pult. Cat. Dorſet.* p. 47.

*Turt. Lin.* iv. p. 514.

*Cochlea unifafciata.* *Da Coſta,* p. 75. t. 17. f. 6.

H. with a ſub-globoſe, ſub-pellucid ſhell, with five volutions a little rounded, well defined by the ſeparating line, and wrinkled longitudinally: colour uſually mottled cinereous, and brown in ſtreaks, and lines; ſome pale, inclining to yellow; others dark, approaching to cheſnut, with moſt commonly a ſingle band of brown about the middle of the body, continuing ſpirally at the baſe of the ſuperior volutions, and is gradually loſt before it reaches the *apex*. This ſingle belt or *fascia* has been conſidered as the ſtrong character of the ſhell; however, it is frequently deſtitute of that mark, and is oftentimes ſo faint as ſcarcely to be traced; the mottled appearance, therefore, is the moſt conſtant and unerring character: aperture lunated, margin reflexed, the inſide bordered with white; in young ſhells a *ſub-umbilicus* is obſervable, which is concealed by the reflected lip in old ones, when the aperture is completely formed. Greateſt diameter about three-quarters of an inch.

This ſpecies may be conſidered as very local, but ſufficiently plentiful in ſome parts. It delights in wet, and ſhady places, particularly amongſt willows and alders, where the ſoil is black and boggy. In ſuch places in the neighbourhood of *Lackham* in *Wiltſhire*, contiguous to the



the river *Avon*, it is the most common shell, but we have rarely found it elsewhere.

DA COSTA observes it is not a common species, but says he has seen them from *Surry*, *Hampshire*, and *Wiltshire*.

DOCTOR PULTENEY remarks it is not common in *Dorsetshire*.

We once received a single specimen from the north of *Devonshire*.

Animal dusky, *tentacula* four, superior ones moderately long, with the eyes at their tips.

29.

*Helix virgata.* Pult. Cat. Dorset. p. 47.

Petiv. Gaz. t. 17. f. 6.

Gualt. t. 2. L. M. P.

Lister Conch. t. 59. f. 56.

*Cochlea virgata.* Da Costa p. 79. t. 4. f. 7.

*Helix zonaria.* Don Br. Shells ii. t. 65.

Br. Zool. t. 85. f. 133. A. (var.)

*Helix Pisana.* Muller Verm. ii. p. 60. No. 255.

Gmel. Syst. p. 3631.

Schroet. Erdconch. p. 188. t. 2. f. 22. & 22.a.

VIRGATA.

H. with a sub-globose, sub-pellucid shell, with six considerably produced, and rounded volutions: colour white, tinged with blush, with one dark purplish-brown band



band on the middle of the body, continuing spirally at the base of the superior volutions quite to the *apex*, which is prominent; at the base there are usually three or four fine circular lines of the same colour; these are sometimes confluent, and the white part appears between in spots; others have two or three broader, circular bands at the base; none of these, however, run close to the *umbilicus*, which is deep but not large: aperture lunated, lip thin, and not reflexed, except at the part close to the *umbilicus*; within pale purplish-brown, with a white, thread-like elevation round the margin.

A variety is not uncommon, of a plain rufous-brown colour, with sometimes a dash of cinereous, obsoletely banded at the base, or with a single white *fascia* on the body; others wholly of a flesh-coloured white, with a white belt on the lower volution. Length generally half an inch; breadth the same; but we have received it from *Kent*, full five-eighths of an inch diameter.

This and the following species have been confounded together; DA COSTA and others have considered it as the *Helix zonaria* of LINNÆUS, to which we cannot assent, though GMELIN has quoted DA COSTA's shell for his *zonaria*.

Nor is it the *zonaria* of PENNANT; that author was not acquainted with this shell, except the plain variety quoted.

Mr. DON-



Mr. DONOVAN informs us, that DA COSTA was not possessed of PENNANT's shell till after his work was published, and that this mistake stands corrected in some of his M. S. notes.

This author, however, considers the *H. virgata* to be the *H. zonaria* of LINNÆUS, as he says, GMELIN admits DA COSTA's shell to be the *Linnæan zonaria*. However this may be, that author has quoted other shells perfectly distinct, and not the least allied to this.

DOCTOR PULTENEY, who gives this as a *Dorsetshire* shell, expressly says, "not *zonaria* of LINNÆUS;" and we are much inclined to coincide with the Doctor.

The *virgata* may be considered as a local species, but is found in prodigious abundance in some sandy, or barren stony situations. Most plentiful near the coast, especially about *Whitsand* bay in *Cornwall*, and in the south of *Devonshire*; where it is a prevailing opinion, they contribute not a little to fatten sheep; the ground in some places being covered with them. It is also found in the more interior counties; is not uncommon in *Wiltshire*; but no where in such abundance as within the influence of saline air. Is the most common species about *Kingsbridge* in *Devonshire*, and on the coast to the east and west of that place, in company with *Turbo fasciatus*. PETIVER noticed it on *Newmarket* heath, near *Cambridge*.

H h h

Animal



Animal of a pale colour, not much unlike that of the following species.

30.

CINGENDA.

*Helix zonaria.* *Br. Zool.* t. 85. f. 133.

*Gualt.* t. 2. H.—t. 3. C?

H. with a sub-pellucid shell, with somewhat the habit of the preceding: it has five volutions, the larger ones rounded, but are a little angulated, or flattened at the top; the three superior spires are very little elevated above the rest: *apex* obtuse and depressed: colour yellowish-white, with several small bands of chesnut, or purplish-brown, running spirally up the shell, which are frequently broken, and form short longitudinal streaks, especially on the flat, or angulated part, on the top of each spire; the base is slightly umbilicated, and has generally one broad circular band, at some distance from the *umbilicus*, and a broad white belt between that and the finer girdles, which are sometimes as many as seven or eight, perfectly distinct, but frequently run into each other: some have two circular bands at the base, close together. The spiral belt usually becomes faint, and frequently quite lost in the upper volutions; but the *apex* is commonly defined by a black spiral line.

A variety is sometimes found quite plain, or with only a few faint girdles on the body. Aperture lunated, margin attenuated, not reflexed, except close to the *umbilicus*, where it turns considerably outward, and partly overlaps



overlaps the perforation. Breadth at the base three-quarters of an inch; height half an inch.

This species differs essentially from *Helix virgata* both in shape and markings; it is larger, broader in proportion to its height, and depressed on the top; whereas that shell has always a produced *apex*, and never more than one belt on the superior volutions.

Mr. PENNANT has given a very good figure of this shell, which he describes to be fasciated spirally with narrow stripes of white, dusky, and yellow. Such are not uncommon, and is by far, the most elegant variety.

This must be considered as one of our most rare species, or at least extremely local: the only place we ever found it in, was on the rocks that verge the town of *Tenby* on the south, close to the sea; and on the sands to the west of that place, contiguous to the shore: in these places we observed it twelve years ago, and lately procured specimens from the same spots: it seems confined to a small district, as we could not find it elsewhere in the neighbouring country.

Mr. RACKETT informed us, he found it near *St. Ives* in *Cornwall*, on the slope of the hill descending to the town. Mr. PENNANT has quoted the *H. zonaria* of LINNÆUS for his shell; but we do not think the description sufficiently corresponds, to consider it as such.



GMELIN makes the *virgata* of DA COSTA, his *zonaria*; but we think he has mistaken the species, for neither of the shells here described, have a reflexed margin to the aperture, which seems to be the character of the *Linnæan* species.

It has also been thought by some, that this is the *H. maculosa* of LINNÆUS, but the same objection holds against its being that shell.

Animal pale-yellow: *tentacula* four, the longest darker than the body, with a dusky streak at the base of each, running backward, and furnished with eyes at their tips: *sustentaculum* longer than the shell.

31.  
RUFESCENS.

- Helix rufescens.* *Br. Zool.* t. 85. f. 127.  
*Lister Conch.* t. 71.—*Id. Angl.* t. 2. f. 12.  
*Pult. Cat. Dorset.* p. 47.  
*Cochlea rufescens.* *Da Costa.* p. 80. t. 4. f. 6.  
*Helix fericea.* *Muller Verm.* ii. p. 62. No. 258?  
*Gmel. Syst.* p. 3617?  
*Helix Turturum.* *Turt. Lin.* iv. p. 521?  
*Gmel. Syst.* p. 3639?  
*Helix hispida.* *Turt. Lin.* iv. p. 512.  
*Helix obvoluta* *b* *Muller Verm.* ii. p. 27. No. 229?  
*Schroeter Erdconch.* p. 194. t. 2. f. 24?

H. with a sub-pellucid, rufous-brown shell, with six volutions not much raised, but well defined by the separating



rating line, and striated, or rather wrinkled longitudinally: shape in general, considerably compressed, and the *apex* very little elevated, so that its height is not above half the breadth. Sometimes it is two-thirds as high as it is broad, and the *apex* more produced: on the middle of the lower volution is a slight, sub-carinated edge, which is more strongly marked by being of a lighter colour like a band: aperture semi-lunated, outer lip thin, a little reflected at the lower angle: *umbilicus* large and deep. Diameter at the base, half an inch.

This shell sometimes appears a little mottled when the animal is alive, especially in the lighter coloured varieties: some are quite pale, others of a deep orange-brown.

The young of this species are frequently hirsute, or covered with short hairs; in which state it has been confounded and described for *Helix hispida*; and we suspect is the *H. tomentosus* of Mr. ADAMS, *Linnæan Transactions*, vol. iii. p. 254. and of TURTON'S LINNÆUS, iv. p. 525.

It is, however, readily distinguished in that state from the *hispida*, by its more compressed shape, in being more opaque, and by the *umbilicus*, which is much larger: the hairs too, are shorter, and seldom spread all over the shell. This hispid appearance wears off before they are half grown. The animal of this is dusky, that of the other light coloured; both have four *tentacula*, and eyes placed at the tips of the longest.

It



It is a common species in most parts of *England*, in moist woods, and shady places.

32.

CANTIANA.

H. with a sub-pellucid shell, with much the habit of the preceding; it has the same number of volutions, is equally compressed, but of a much superior size, and has not the sub-carinated edge, though a faint white band is frequently to be traced on that part: the colour too is lighter, with a blueish, or lead-coloured tinge, on the superior volutions, produced by the dark colour of the animal; the base and round the mouth rufous. The aperture is like that shell, but the *umbilicus* is less in proportion. Diameter at the base above three-quarters of an inch; height half an inch.

This is probably the shell Doctor LISTER mentions as a variety of the *H. rufescens*, which he speaks of as being found in *Kent*, and says it is larger, lighter coloured, and with a smaller *umbilicus*. There is no doubt, however, of its being a distinct species, and very local, having never obtained it from any part but *Kent*, where it is found chiefly upon the chalky soil.

We have received it from our much esteemed friend Mr. Boys of *Sandwich*, by the name *rufescens cantiana*, by which, we have been informed, it was known in the *Portland* cabinet.

Helix



*Helix hispida*. *Lin. Syst.* p. 1244.—*Gmel. Syst.* p. 3625. 42. *HISPIDA*.

*Chem. Conch.* ix. t. 122. f. 1057. 1058.

*Muller Verm.* ii. p. 73. No. 268.

*Petiv. Gaz.* t. 93. f. 13. 14.

*Morton Northamp.* p. 416 ?

*Da Costa.* p. 58. t. 5. f. 10.

*Pult. Cat. Dorset.* p. 47.

*Schroeter Erdconch.* p. 186. t. 2. f. 21.

H. with a sub-globose, thin, fragile, diaphanous shell, with five rounded volutions of a very light horn-colour, covered with fine, thick-set, short, downy, whitish hairs; aperture lunated; lip thin, not reflected, except at the angle close to the *umbilicus*, where it turns back, and partly surrounds the perforation: base rounded: *umbilicus* very small, and round.

This species seldom much exceeds a quarter of an inch in breadth, and something less in height; is so remarkably light, and so covered with hairs, that when let fall upon a hard body is scarce heard.

It appears to be a very local shell, having found it only about *Tremough* house, near *Penryn* in *Cornwall*, where it is tolerably plentiful: and sparingly in *Devonshire* and *Wiltshire*. *DA COSTA* speaks of it from the last mentioned county, as well as from *Hampshire* and *Lincolnshire*.

Doct<sup>r</sup> *PULTENEY* says, it is common in *Dorsetshire* in woods, among moss, and in wet and shady places.

We



We are inclined to believe the Doctor, as well as others, have confounded this with the young of the *H. rufescens*, which is frequently hirsute, and not uncommonly placed in cabinets for this species; but we before remarked in the description of that shell, that the shape and *umbilicus* are very different. This, too, is never of that rufous colour, which DA COSTA has unfortunately given to his shell; his description, however, in every other respect is very good.



34.

FUSCA.

Tab. 13. f. 1.

H. with a thin, pellucid, rufous horn-coloured shell, with five or six volutions, almost smooth, or very faintly wrinkled longitudinally: aperture lunated, lip thin, not reflected, except a little at the lower angle; at which part is a small depression, but no *umbilicus*.

This has much the habit of *H. rufescens*, but is more pellucid, not so much wrinkled, and is at once distinguished by not having any *umbilicus*.

We were favoured with this species from Mr. BOYS of *Sandwich*, who informed us, it was known about *London* by the name prefixed. It seems, however, to be a rare species, very little known, and not described by any one.

It rarely exceeds three-eighths of an inch in diameter at the base, and is not a quarter of an inch in height.

We



We once found it in a wood in *Devonshire*; this was so uncommonly thin (though not of an inferior size) that as the animal dried, the shell contracted with it into depressions.



35.

*Helix lucida.* *Pult. Cat. Dorset.* p. 47.—*Gualt.* t. 2. G. LUCIDA.

*Helix nitens.* *Gmel. Syst.* p. 3633. 66.

*Turt. Lin.* iv. p. 516.

*Chem. Conch.* t. 127. f. 1130. 1131.

*Helix pellucida.* *Br. Zool.* No. 134?

*Helix nitida.* *Müller Verm.* p. 32. No. 234.

*Petiv. Gaz.* t. 93. f. 14.

*Schroeter Flussconch.* t. 5. f. 32. 33.

H. with a smooth, glossy, thin, pellucid, horn-coloured shell, with five, and sometimes six volutions, the lower one rounded, the rest almost flat and depressed, or very little raised above the body whirl: the base is of a lighter colour, more opaque, and has frequently a faint tinge of green: *umbilicus* large and deep: aperture lunated, margin thin, and not the least reflected. Diameter at the base usually three-eighths of an inch, sometimes half an inch; height not above two-tenths.

This is not an uncommon species, is found in many parts of *England*, in moist woods, as well as in dry banks.

We have found a shell inhabiting wet places, and once alive under water, so much like this, that we dare not



give it a distinct place, though we are much inclined to believe it a different species. It is more pellucid, the *apex* more produced, and never has that opaque greenish colour at the base: that found under water (which we take to be SCHROETER's fig. 32) was of a light, transparent horn-colour. Others, taken in wet drains and ditches about *Newbury* in *Berkshire*, are of a rufous horn-colour, (which is probably SCHROETER's fig. 33): the animal is black, and when alive, gives the shell a deep chocolate-brown colour. This last we have also found on a swamp, in a wood belonging to Lord CLIFFORD in *Devonshire*, rather lighter in colour.

We are aware that the colour of shells is somewhat affected by the soil, at least such as live in moist or watery places: those found at *Newbury* are doubtless of a darker colour, from partaking of the soil, which is peat.

This last never exceeds a quarter of an inch in breadth. That found under water, was crawling upon brooklime, and was considerably larger: it was in a water-course, or drain to a swamp, near *Penzance* in *Cornwall*. These, however, appear from their shape to be the same, but whether they are really distinct from the *lucida*, or only varieties, the observations of future conchologists must determine. We do not recollect, whether the animal of that we found under water, was of the true aquatic kind, or whether it possessed four retractile



tractile *tentacula*, and had by accident fallen into that element; but we never before or since, found one so large, so extremely thin and pellucid, or of so light a colour. The animal of this is dusky above; *tentacula* four, of the same colour, cylindric, a little clavate at the end, the longest furnished with eyes at their tips.



*Trochus terrestris*, Listeri. *Da Costa* p. 35.

*Lister Angl.* p. 123.

*Phil. Trans.* No. 105. f. 9?

*Helix Trochulus.*

*Muller Verm.* p. 79. No. 276.

36.

TROCHIFORMIS.

Tab. 11. f. 9.

H. with a thin, pellucid, horn-coloured shell, sometimes inclining to rufous; with six rounded volutions, nearly smooth, and glossy, strongly divided by the separating line: *apex* considerably produced: base a little rounded: aperture sub-lunated, transversely compressed; lip attenuated, in old shells a little reflected at the lower angle, forming a *sub-umbilicus*, scarce distinguishable in young specimens, though most times a little concave in the centre of the base. Length about one-eighth of an inch; breadth nearly the same.

This species has much the habit of a *Trochus*, but the lunated mouth forbids its being placed in that genus. It is a rare shell; we first observed dead specimens amongst the drifted sand in the river *Avon* in *Wiltshire*; and afterwards found it sparingly, alive, in *Lackham* wood, in the same county; and also in a wood close to Lord CLIFFORD's house in *Devonshire*.



It seems partial to moist situations, and is generally found on decayed wood, or timber that has lain some time on the ground.

Mr. SWAINSON has this shell in his cabinet; and, we believe, said he found it in *Kent*.

Animal light coloured, paler beneath; *tentacula* four, the superior ones not very long, furnished with eyes at their tips.



37.

LACUNA.

Tab. 13. f. 6.

H. with a thin, pellucid, sub-globose shell, of a light horn-colour, with four tumid, smooth spires, the first large, the two uppermost very small, and placed somewhat lateral: aperture large, sub-oval; outer lip extremely thin, membranaceous; pillar lip thick, white, grooved with a long canal or gutter, which terminates in a small, but deep *umbilicus*. Length a quarter of an inch; breadth nearly the same.

The form of the pillar lip, and the lateral situation of the smaller volutions, give this shell much the habit of a *Nerita*; but the shape of the mouth makes it a *Helix*. It must not therefore be confounded with the *Nerita pallidula*, whose pillar lip is somewhat of the same form, but much broader; the smaller volutions more lateral, and more compressed: the body, and mouth too, are vastly larger.

We



We never found this species any where but on the coast of *Devonshire* sparingly, and on the shore near *Southampton*, where it is plentiful about high water-mark, but most frequently dead shells; some of which have the *epidermis* worn off, and in that state are white.

Have received small specimens from *Folkstone* in *Kent*.

A variety is rarely found with two rufous-brown bands.



38.

*Helix spinulosa*. *Phil. Trans.* LXXVI. t. 2. f. 1. to 5. SPINULOSA.

(*Lightfoot*.)

Tab. 11. f. 10.

*Helix aculeata*. *Gmel. Syst.* p. 3638.

*Muller Verm.* ii. p. 81. No. 279.

*Chem. Conch.* ix. t. 133. f. 1209.

*Morton Northamp.* p. 415?

*Helix nucleata*. *Turt. Lin.* iv. p. 520.

H. with a sub-pellucid, thin, brown, horn-coloured shell, with five rounded volutions, well defined by the separating line, furnished with regular, membranaceous striæ, that rise into fine hair-like spines, particularly round the middle of each volution: *apex* considerably produced; aperture semi-lunated: base perforated. Length one tenth of an inch; breadth nearly the same.

The striæ of this species seem to be formed by the *epidermis*, which rises in some parts into thin, flat, bristly processes,



processes, that give it a spinous appearance: neither these, nor the striæ, are testaceous, but flexible, and easily rubbed off. It does not appear to be a plentiful species: we have found it in the woods at *Lackham* in *Wiltshire*, and about *Kingsbridge* in *Devonshire*; and have received it from *Sandwich* in *Kent*. This is probably the shell described by Mr. MORTON, to be found in *Morsley* wood, in *Northamptonshire*, but is extremely rare; he says, it had five wreaths, and that the live shell is a little bristly.

LIGHTFOOT, who has given a good figure of this shell, in the *Philosophical Transactions* for 1786, says, it was found near *Bullstrode*, at the foot of pales, upon old bricks and stones, after rainy weather, in June and July.

It was called by Doctor SOLANDER *Helix delectabilis*.

Animal light coloured, paler beneath: *tentacula* four, the superior ones long in proportion to the animal, sub-clavate, furnished with eyes at their tips.

39.

CAPERATA.  
Tab. 11. f. 11.

*Helix nævia*. *Gmel. Syst.* p. 3623. 245?

*Turt. Lin.* iv. p. 510?—*Gualt.* t. 2. N?

*Chem. Conch.* ix. t. 133. f. 1207?

*Schroeter Flussconch.* t. 5. f. 35.

H. with a sub-pellucid, and somewhat compressed shell, fasciated with purplish-brown and white: volutions  
fix,



fix, furnished with strong, regular, close-set, longitudinal striæ: on the upper part of the body whirl is usually a brown belt, which continues up the lower part of the superior volutions: at the base of the shell are generally several small circular bands; these are frequently interrupted or broken, and appear spotted. Sometimes the brown *fasciæ* run into each other, and are elegantly spotted with white: aperture lunated; lip thin, not reflected: *umbilicus* moderately large and deep. Diameter at the base commonly three-eighths of an inch, rarely half an inch; height about a quarter.

This species is subject to great variety in markings; some are dark-brown with a single white belt on the body, and minutely spotted with white: others are cinereous-brown, or grey; but in most, some faint appearance of *fasciæ* are to be traced, and most commonly the white band round the middle of the body volution: the *apex* is of a dark colour. In shape it is a medium between the *Helix virgata* and *radiata*; is not so produced as the former, nor so flat as the latter; in the bands, or *fasciæ* at the base, it somewhat resembles the first, and in being strongly striated, is like the last.

The *umbilicus* is much less than in the *radiata*, although the shell is much superior in size.

It is a local species, and seems to affect dry situations.

We



We have found it sparingly in *Wiltshire*, and not uncommonly upon some of the hills in the south of *Devonshire*, especially about *Stanborough* and *Woolcomb*, amongst the short stunted herbage of the barren pasture land. It is also rarely met with in *Cornwall*; but the finest and largest are found in the barrack-yard of *George's-Square*, at *Plymouth Dock*, against the wall facing the south; so hot a situation in summer, that scarce any other species is ever found.

We have also received it from *Kent*, of a light cinereous colour, with so little appearance of bands or *fasciæ*, that it might readily have been mistaken for a distinct species, was it not for the strong, regular *striæ*, which, amongst the *British Helices*, seems to be confined to this and the *radiata*. Mr. BOYS favoured us with this shell, by the name of *Apex-niger*, by which it was known to Doctor SOLANDER, and placed as such in the *Portland* cabinet.

40.  
RADIATA.

- Helix radiata.* *Da Costa.* p. 57. t. 4. f. 15. 16.  
*Pult. Cat. Dorset.* p. 47.  
*Lister Conch.* t. 1058. f. 11.  
*Gualt.* t. 3. Q.—*Petiv. Gaz.* t. 31. f. 5.  
*Morton Northamp.* p. 416.  
*Helix rotundata.* *Mull. Verm.* ii. p. 29. No. 231.  
*Schroeter Erdconch.* p. 199. t. 2. f. 25.  
*Gmel. Syst.* p. 3633.

H. with



H. with a compressed, sub-carinated shell, of a light-brown colour, prettily rayed with chefnut: volutions six, not much raised, but well defined by the separating line, and strongly marked with close-set, regular, longitudinal striæ, from the *apex* across the volutions: aperture lunated: *umbilicus* extremely large for the size of the shell, the turn of the spires visible to the end. Diameter a quarter of an inch.

This species is not uncommon in many parts of *England*, on old walls, and dry banks; and not unfrequent in woods, or under stones, or timber that has lain for some time.

We have found it in many parts of most the southern counties. It is subject to some variety; some are of a pale horn colour, with scarce any visible rays; dead shells become whitish and opaque, with faint brown rays; but in all states, it is easily distinguished by its compressed shape, deep and large *umbilicus*, and regular, deep-cut striæ.

Not *radiata* of GMELIN, nor *striatula*, which Doctor PULTENEY has quoted with doubt; but we suspect the *rotundata*.

Animal light-cinereous; *tentacula* four, superior ones filiform, sub-clavate, furnished with eyes at their tips.

K k k

H. with



H. with a sub-pellucid, dark, horn-coloured shell, inclining to chocolate: volutions five, much rounded, divided by a deep separating line, and finely striated across the whirls: *apex* moderately produced: aperture lunated; lip attenuated, not reflected; *umbilicus* extremely large and deep for the size of the shell, the spires visible to the end. Diameter at the base one tenth of an inch; height not quite so much.

This species has much the habit of the preceding, and might readily be confounded for the young of it, was it not always of a uniform dark colour: upon nice inspection too, it will be found to be not so flat, the volutions much more raised, and strongly divided, and the striæ less conspicuous.

We first discovered this shell on loose built walls, that enclose the fields about *Tenby* in *Caermarthenshire*, in vast profusion, lurking under the upper stones; and at first sight took them to be the young of the *H. radiata*, but by the assistance of a lens was soon convinced to the contrary; besides, not a single *radiata* was to be found in that neighbourhood. They seem to be confined to the north side of that town, and were not to be met with else-where: nor were we able to discover it in any other part of *England*, till about ten years after; when we found it in considerable abundance under loose stones, on the summit of the hill, in *Portland* island, and on the  
top



top of *Corff Castle*, in *Dorsetshire*: and under the tiles of *Laycock Abby*, and *Lackham House*, in *Wiltshire*.

It is proper to remark, that the young *radiata* is quite flat when of the size of this shell, has only three or four volutions, but is strongly striated, and sub-carinated. In this the striæ are at all times scarcely discerned by the help of a glass, and the *apex* is considerably produced, even in their most minute state, when not so large as a small pin's head; and the lower volution rounded, without the least appearance of a carinated edge.

It is remarkable, that this shell always affects such lofty places as on the tops of houses, without one being found near the base; and in that situation its inhabitant braves equally the scorching beams of the sun in summer, and the frigid winds of winter, without attempting to descend.

Animal dusky-black, with four *tentacula* of the same colour; superior ones not very long, furnished with eyes at their tips: *sustentaculum* shorter than the shell.



42.

*Helix lapicida*. *Lin. Syst.* p. 1241.—*Gmel. Syst.* p. 3613. 2. LAPICIDA.

*Chem. Conch.* ix. t. 126. f. 1107.

*Muller Verm.* ii. p. 40. No. 240.

*Lister Conch.* t. 69. f. 68—*Id. Angl.* t. 2. f. 14.

*Br. Zool.* t. 83. f. 121.—*Gualt.* t. 3. N?

*Pult. Cat. Dorset.* p. 46.

*Don. Br. Shells.* ii. t. 39. f. 2.

K k k 2

Helix



*Helix lapicida.* *Turt. Lin.* iv. p. 502.

*Schroeter Erdconch.* p. 191. t. 2. f. 23.

*Petiv. Gaz.* t. 92. f. 11.

*Helix acuta.* *Da Costa.* p. 55. t. 4. f. 9.

H. with a sub-pellucid, compressed, brown shell, variegated with darker shades: volutions five, almost flat, or very little raised; and the shell is nearly equally convex above, and below; the lower volution strongly carinated, or brought to a sharp edge, which continues spirally throughout the superior volutions, and marks their separation by a fine thread-like ridge: it is striated, or rather wrinkled, across the whirls, and the whole shell is minutely and elegantly shagreened: base furnished with a wide, and deep *umbilicus*: aperture sub-oval, sub-lunated, margin sharp, white; outer lip reflexed; inner lip spreading on the body. Breadth three-quarters of an inch; height about three-eighths.

This species is found in many parts of the kingdom in shady woods, as well as in rocky exposed situations, such as the top of the hill in *Portland* island; where it is not uncommon. Sometimes in hedges, and ditch-banks, or on old walls, but is not a very plentiful shell any where; though it has been found in most of the southern counties.

We believe does not extend into *Cornwall*, or *Devonshire*; at least we never could find it in those parts.

Animal



Animal rufous-brown along the back, the sides dusky; a streak of the same at the base of each of the longest *tentacula*; these are furnished with eyes at their tips.

43.

- Helix *Ericetorum*. *Gmel. Syst.* p. 3632.—*Gnalt.* t. 3. P. ERICETORUM.  
*Chem. Conch.* ix. t. 132. f. 1193. a. b.  
*Lister Conch.* t. 78. f. 78.  
*Id Angl.* t. 2. f. 13.  
*Pult. Cat. Dorset.* p. 47.  
*Turt. Lin.* iv. p. 516.  
*Muller Verm.* ii. p. 33. No. 236.  
Helix *Erica*. *Da Costa.* p. 53. t. 4. f. 8.  
Helix *albella*. *Br. Zool.* t. 35. f. 122.  
*Turt. Lin.* iv. p. 503.  
Helix *Itala*. *Lin. Syst.* p. 1245.?  
*Gmel. Syst.* p. 3636?

H. with a sub-pellucid, compressed shell; volutions six; the first remarkably rounded, the superior ones scarce elevated above the body whirl, wrinkled across the spires: colour white, sometimes with a yellowish tinge; on the upper part of the larger whirl is a brown band, which continues spirally at the bottom of each of the smaller volutions, and marks their division; at the base of the shell are frequently other small circular bands, from one to five in number: *umbilicus* remarkably large and deep, exposing nearly half the breadth of the smaller volutions: aperture sub-orbicular, sub-lunated; margin thin, a trifle reflected. Breadth three quarters of an inch;



inch; height little more than a quarter. Some variety is observed in this species, with respect to the ground colour, as well as that of the *fasciæ*; the former is from a pure white to a pale yellowish-brown, especially on the under part; and the bands vary from a pale to a deep purplish-brown: but it is not unusually found without any bands, and when dead and bleached is pure white.

This is not an uncommon shell upon dry, sandy heaths, and barren land, in many parts of *England*; but we never met with it so plentiful as upon the sandy declivity of the hill above *Whitsand* bay, at the extremity of the peninsula of *Cornwall*; where, together with *Helix virgata*, and *Turbo fasciatus*, the ground is perfectly covered.

It has somewhat the habit of the former of these last-mentioned shells; but is at once distinguished, by its compressed shape, and capacious *umbilicus*, in which it exceeds every other of the larger *British* species.

44.

SUBCARINATA.

Tab. 7. f. 9.

*Helix. Walk. Min. Shells. f. 22?*

H. with a sub-pellucid, white shell: volutions three; the lower one large, the others small, a little produced, and placed somewhat lateral: round the base of the body wreath are two fine ridges; and on the upper part another, which continues round the middle of the second  
volution,



volution, and is lost in the future, or division, towards the *apex*; between the ridges, the shell is finely striated across the spires; from the lower ridge, at the base, commences a depression, or semi-circular channel, which sinks into a deep and large *umbilicus*: aperture oval; outer lip projecting considerably; inner lip reflected, and spreading into a sharp angle, elevated on the body whirl. The mouth, as well as the whole shell, is thick and strong for its size. Diameter at the base one tenth of an inch; height rather more than half as much.

This singular, and curious species, has much the habit of a *Nerita*, but the form of the aperture gives it a place amongst the *Helices*.

We have found it sparingly amongst fine sand from *Salcomb* bay, *Bigberry* bay, and *Milton* sands, on the south coast of *Devon*: and have received it from *Dover* in *Kent*, of a very inferior size, found on that coast by Mr. LYONS.



45.

H. with a depressed, sub-pellucid shell, of a light-DEPRESSA.  
brown colour: volutions three or four; the superior Tab. 13. f. 5.  
ones scarce elevated above the body, but well defined  
by the separating line, and slightly wrinkled: *apex* very  
conspicuous, but very little raised, or produced; lower  
volution perfectly round or cylindric, so as to form a  
large *umbilicus*, in which the others are distinctly seen:  
aperture



aperture round, nearly even, lateral, and not clasping the body, but spreading a little on that part.

We found this species sparingly in sand from *Whitsand* bay, and *Falmouth* in *Cornwall*; and at *Burrow* island in *Devonshire*. Diameter scarce one line.

This is by far the most compressed of any *British* marine shells, and bears some resemblance to *Helix cristata*, but is much smaller, stronger, more opaque, and the *apex* rather more prominent.

46.

PALUDOSA.

*Helix paludosa*. *Da Costa* p. 59.

*Walk. Min. Shells*. f. 23.

*Morton Northamp.* p. 417.

H. with a smooth, sub-pellucid, white shell, with four rounded volutions, well defined by the separating line; the superior ones very little produced from the body whirl, so that when viewed sideways the *apex* appears but little elevated: base largely umbilicated, shewing the turns of the smaller volutions: aperture round, margin thick, opaque white, reflected, not quite meeting on the body. Diameter one tenth of an inch.

DA COSTA has given this species from Mr. MORTON, who found it plentiful in boggy places in *Northamptonshire*.

It



It is not an uncommon shell in many parts of *England*, but from its smallness has escaped general notice. Mr. WALKER speaks of its inhabiting marshy ground, and not unfrequent about *Faversham*. We have received it from Mr. BOYS of *Sandwich*. It is most commonly found in rivers and streams of water, after floods, amongst the sand, and other refuse, brought down by the current; having been swept from the neighbouring wet and swampy situations. Is very plentifully found after a flood, on the banks of the river *Avon*, in *North Wiltshire*, about *Lackham*; and not uncommon amongst the drifted sand of the *Kennet*, at *Newbury* in *Berkshire*.

Sometimes met with in dry situations, on ditch-banks and old walls.



47.

Turbo helicius. *Phil. Trans.* LXXVI. t. 3. f. 1. to 4. CRENELLA.

(*Lightfoot.*)

Tab. 13. f. 3.

H. in every respect like the last, except that it is striated across the volutions in a strong and regular manner, and is frequently covered with a light-brown *epidermis*.

We received this shell from our estimable friend Mr. BOYS, by the name prefixed; he considered it as distinct from the *H. paludosa*, and said it inhabited mossy walls, and banks, where that shell was not to be found. We cannot, however, help expressing some doubts with respect to its being really distinct, with every submission

L l l

to



to such authority: but as we have frequently found it with the *paludosa*, and often times so little striated as scarce to be separated, think it but right to prepare others for so nice a discrimination.

Mr. LIGHTFOOT has given a very good figure of this shell in the *Philosophical Transactions* for 1786, considering it a nondescript species. Whether he was acquainted with the *H. paludosa* of DA COSTA, which is figured in WALKER'S *minuta rariores* is uncertain; but probably not, or he would have mentioned the great similitude between these. He particularly says, the volutions are transversely surrounded with numerous sharp-edged membranaceous rings, which are very fragile and deciduous.

If it is really distinct from the *H. paludosa*, we fear no permanent, specific character of distinction, will ever be fixed; for every gradation is to be seen, from the strongest striated, to those destitute of any such mark: both are equally pellucid white, when divested of their brown *epidermis*, in a living or recent state; and opaque in old dead shells.

In some the ridges or striæ are much elevated, and mostly membranaceous, but in such strong marked specimens the base of these striæ are permanent or testaceous, not to be destroyed by rubbing off the *epidermis*; whereas, in others that appear striated when fresh, are wholly



wholly divested of such appearance, by depriving them of the *epidermis*.

According to Mr. LIGHTFOOT, it has been found near *Bullstrode*, upon bare stones in moist weather.

This shell was named *Turbo Crenellus* by Doctor SOLANDER, as we have been informed by Mr. BOYS, who favoured us with a list of names given by that gentleman to many of the minute, and other shells, which he had sent to the *Duchess Dowager of Portland* at *Bullstrode*, for inspection, previous to the publication of the *Testacea minuta rariora*. From this circumstance it is evident, Mr. WALKER was acquainted with this shell, before it was given to the public by Mr. LIGHTFOOT, but for what reason it was omitted in the *Minute Shells* does not appear, unless it was then considered as an accidental variety of the *paludosa*.



48.

*Helix* utrinque umbilicata apertura rotunda unici anfractus. UNISPIRALIS.

*Walk. Min. Shells. fig. 27.*

The single spired, umbilicated, round mouth'd snail.

The colour white, opaque, and glossy.

From *Sandwich*; not common.



49.

RESUPINATA.

*Helix* apertura ampla ovali anfractibus apicis resupinatis.  
*Walk. Min. Shells.* f. 24.

The snail with a large, oval mouth, and the spires of the tip turned backwards.

The colour of horn, semi-pellucid and glossy.

From *Sandwich*: very rare.

50.

GLOBOSA.

*Helix* globosa duobus anfractibus lævis apertura subrotunda.  
*Walk. Min. Shells.* f. 25.

The smooth, round snail, with two spires and a roundish mouth.

The colour white, opaque, and glossy.

From *Sandwich*: not common.

51.

RETICULATA.

*Helix* reticulata. *Turt. Lin.* iv. p. 525.—*Ad. Micr.* t. 14. f. 12.

*Helix* unci anfractus sub-umbilicata apertura rotunda marginata eleganter reticulata. *Walk. Min. Shells.* fig. 26.

The round mouth'd, reticulated, single spired, slightly sub-umbilicated snail.

The colour white and pellucid.

From *Reculver*: extremely rare.

*Helix*



*Helix striata*. *Turt. Lin.* iv. p. 532.—*Adams Micr.* t. 14 f. 13. **STRIATA.**

*Helix striata* apertura sub-ovali anfractibus supradorsalibus.

*Walk. Min. Shells.* fig. 29.

The oval mouth'd, striated snail, with three spires reflected on the back.

The colour greenish-white, pellucid.

From *Sandwich*: very rare.



*Helix anfractibus duobus apertura sub-rotunda ad umbilicum* **COARCTATA.**

*coarctata. Walk. Min. Shells.* f. 30.

The snail with two spires, and a roundish aperture contracted near the *umbilicus*.

The colour white and pellucid.

From *Sandwich*: not common.

Mr. BOYS favoured us with this shell, with a reference to WALKER's figure: from the appearance we have little doubt, but it is the fry of some species of land *Helix*.

The preceding six shells, which we have been obliged to copy from the *Testacea minuta rariora*, (never having come under our examination, the last excepted) are represented to be very minute.

*Helix*



54.

TUBULATA.

*Helix* tribus anfractibus longitudinaliter striatis. *Lin. Trans.* iii. p. 67. (*Adams.*)

*Obs. Singularis hac in specie est constructio, nam testa, umbilici loco, tubo marginato qui extra testæ superficiem extenditur, instructa est. Fig. 35. 36.*

Shell with three longitudinally striate whorls, and a margined tube at the base, in the place of an *umbilicus*, extending beyond the surface of the shell. *Turt. Lin.* iv. p. 525.

55.

VARIEGATA.

*Helix* testa lævi quatuor anfractibus, primo ventricosiore, lineis rubris notatis. *Lin. Trans.* iii. p. 67. (*Adams.*)

*Obs. Basi imperforata. Testa sub-pellucida, aperturæ margine patentissima.*

Shell imperforate, sub-pellucid, smooth, with red lines: whorls four, the first more ventricose: margin of the aperture very much spread. *Turt. Lin.* iv. p. 531.

56.

FASCIATA.

*Helix* testa lævi tribus anfractibus, primo ventricosiore, sub-umbilicatâ, aperturâ ampliâtâ. *Lin. Trans.* v. t. 1. f. 20. 21. (*Adams.*)

*Obs.* This delicate species is pellucid white; first spire marked with three transverse belts of a rich marone colour, the middle one broad, the lateral ones narrow.

Shell



Shell sub-umbilicated, smooth, with three whorls; the first more ventricose: aperture dilated. *Turt. Lin. iv. p. 525.*



57.

*Helix testâ duobus anfractibus, subtilissimè transversè striatâ. NITIDISSIMA.  
Lin. Trans. v. t. 1. f. 22. 23. 24. (Adams.)*

Obs. Corneous, pellucid, umbilicated; easily distinguished by the uncommon brilliancy of its glossiness.

Shell umbilicate, with two whorls very finely striate transversely. *Turt. Lin. iv. p. 525.*



58.

*Helix testâ lævi duobus anfractibus, vix umbilicatâ. Lin. BICOLOR.  
Trans. v. t. 1. f. 25. 26. 27.*

Obs. This species differs from the preceding, to which it is nearly allied in other respects, in being perfectly smooth, devoid entirely of any glossiness, and in having the inside of the shell white.

Shell slightly umbilicate, smooth, with two whorls. *Turt. Lin. iv. p. 525.*

The preceding five species we have been obliged to copy from the descriptions of minute shells given in the *Linnæan Transactions* by Mr. ADAMS; found on the coast of *Pembrokeshire*.

We



We shall however take this opportunity to remark, that great attention is requisite in the investigation of these microscopic species, which we fear have already been unnecessarily multiplied, arising from the difficulty of describing and delineating such small objects under a microscope. Those who have been in the habits of studying the diminutive works of nature in this way, are aware of the difficulty. Much caution is also requisite in admitting those minute species of shells, with only two or three volutions as distinct, unless they possess some character which strongly marks them as such, as many are probably the fry or young of others. Upon this principle we have rejected many which have come under our inspection, rather than puzzle science with uncertainty.

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\*\*\*DEPRESSED, APEX COMPRESSED.

59.  
CORNEA.

*Helix cornea.* *Lin. Syst.* p. 1243.—*Gmel. Syst.* p. 3623. 35.  
*Lister Conch.* t. 137. f. 41.—*Id. Angl.* t. 2. f. 26.  
*Chem. Conch.* ix. t. 127. f. 1113. 1115.  
*Schroet Flussconch.* t. 5. f. 19. 20. 21.—& t. *Min.*  
C. f. 7.—*Gualt.* t. 4. D. D.  
*Muller Verm.* ii. p. 154. No. 343.  
*Petiv. Gaz.* t. 92. f. 5.—*Br. Zool.* t. 83. f. 126.  
*Favan. Zoomorph.* t. 75. D. 1. 2. 3.  
*Pult. Cat. Dorset.* p. 47.  
*Hill. Swammerd.* p. 83. t. 10. f. 3.

*Helix*



|                      |                                                                                           |
|----------------------|-------------------------------------------------------------------------------------------|
| Helix cornea.        | Don. <i>Br. Shells.</i> ii. t. 39. f. 1.<br><i>Turt. Lin.</i> iv. p. 510.                 |
| Helix nana.          | <i>Br. Zool.</i> t. 83. f. 125. (young.)                                                  |
| Helix Cornu Arietis. | <i>Da Costa.</i> p. 60. t. 4. f. 13.                                                      |
| Helix similis.       | <i>Gmel. Syst.</i> p. 3625 ?                                                              |
| Planorbis similis.   | <i>Muller Verm.</i> ii. p. 166. No. 352 ?<br><i>Schroeter Flussconch.</i> p. 245. No. 58. |

H. with a depressed, sub-pellucid shell, of a brown, or cinereous, sometimes rufous horn-colour, lightest on the under part: volutions four, rounded, and separated by a deep spiral line: *apex* much depressed, forming a considerable cavity: the under part nearly flat, or a little concave: it is considerably wrinkled across the volutions, and has sometimes one or two larger, antiquated ridges: aperture almost equi-lateral, sub-lunated; margin thin, a little oblique downwards; inner lip a little spread on the body whirl, whitish at the angles, and round the inner margin. Diameter usually about an inch, rarely an inch and a quarter.

This, the largest species of our depressed *Helices*, is not uncommon in some of our flow rivers, and stagnant waters, especially in old water courses and drains in low swampy situations; but is certainly more local than *DA COSTA* describes it to be; who says, it is common in all ponds, rivers, and lakes throughout *England*. This certainly is far from being the case; however, it is sufficiently plentiful in some parts, though we have never found

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it



it further westward than in *Dorsetshire*; where, about *Wareham*, it is abundant.

This is one of the shells that yield a beautiful scarlet dye, but all attempts hitherto to fix it either by acids or astringents have proved ineffectual.

60.

## COMPLANATA.

*Helix complanata.* *Lin. Syst.* p. 1242.—*Gmel. Syst.* p. 3617.

*Turt. Lin.* iv. p. 506.

*Helix Planorbis.* *Br. Zool.* t. 83. f. 123.

*Petiv. Gaz.* t. 10. f. 11.

*Pult. Cat. Dorset.* p. 46.

*Chem. Conch.* ix. t. 127. f. 1121. 1122.

*Lister Conch.* t. 138. f. 42.

*Id Angl.* t. 2. f. 27.

*Favan.* t. 61. B. 5.—*Gualt.* t. 4. E.E.

*Hill. Swammerd.* p. 84. t. 10. f. 5.

*Planorbis umbilicatus.* *Muller Verm.* ii. p. 160. No. 346.

*Schroeter Flusconch.* p. 239. t. 5. f. 22.

to 25.—& t. *Min. C.* f. 4.

*Helix limbata.* *Da Costa.* p. 63. t. 8. f. 8.—t. 4. f. 10.

H. with a depressed, sub-pellucid shell, of a light horn-colour; sometimes rufous, or light chesnut-brown, and not unfrequently covered with a dark-brown *epidermis*: volutions five, laterally placed upon each other, gradually decreasing to the centre, making the shell concave at top; these are rounded and well defined by a strong separating line: the under part is also a little concave,



concave, and the whole shell finely striated or wrinkled across the whirls: round the margin of the base is a fine carinated ridge: aperture oval, somewhat angulated, not even, but flanting towards the base. Diameter about five-eighths of an inch.

This species, which has been generally mistaken for the *H. Planorbis* of LINNÆUS, is common in most flat countries abounding with wet ditches and water-courses: is frequent also in rivers, and ponds.

Animal dusky, with two long, slender, setaceous *tentacula*, of the same colour, opaque, and very dark in the middle, but somewhat transparent along the sides: eyes placed on the head, at the base of the *tentacula* beneath.



61.

*Helix Planorbis.* *Lin. Syst.* p.1242.—*Gmel. Syst.* p.3617. CARINATA.  
*Turt. Lin.* iv. p. 505.

*Planorbis carinatus.* *Muller Verm.* ii. p. 157. No. 344.  
*Chem. Conch.* ix. t. 126. f. 1102. a. b.  
*Schroeter Flusconch.* p.226. t. 5. f. 13.  
14. 15.

H. with a depressed, flat, sub-pellucid shell, of a light horn-colour, somewhat glossy; volutions four, laterally placed upon each other; the outer one broad, not much rounded, but sloping gradually to a sharp carinated ridge, that surrounds the shell: the interior volutions are small, and suddenly decrease to the centre, where it sinks into a small *umbilicus*: the base is nearly flat, the inner volution not being sunk, but is on a level with the

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others:



others: the whole shell is slightly wrinkled across the whirls: aperture narrow, oval, angulated. Diameter rather more than half an inch.

This and the preceding species have been generally confounded together in cabinets under the title of *Planorbis*: but they are perfectly distinct, though it is difficult to affix to them their proper synonyms. There is little doubt, however, that this is the *H. Planorbis* of GMELIN, and of MULLER, as in the characteristic description of the last author, he says "*carina marginali media*," and calls the shell *Planorbis carinatus*: and in his *Planorbis umbilicata* (which we consider as the *complanata* of LINNÆUS) he says, "*carina marginali infera*;" which well defines the *complanata*, or what has been termed by British conchologists *Helix Planorbis*, from a supposition it was that shell of LINNÆUS.

In order, therefore, to prevent confusion, we have not given the *Linnæan* title to this species, as the name of *Planorbis* is so well known to *English* collectors for a very different shell; but have adopted the name given by MULLER.

The great distinction of these two shells is, that this is not so thick as the *complanata*, the body whirl is not so rounded, but slopes gradually to the carinated ridge, which is not placed so low, and is equally conspicuous above and beneath; a circumstance not observable in the other. The base, or under side, in this is more flat, and  
some-



sometimes even inclined to convexity: but a most essential character is, that the volutions taper more suddenly to the centre, terminating in a smaller, but deeper *umbilicus*. The aperture is also more compressed, and the continuation of the *carina* within the mouth more conspicuous. This shell is not near so common as the *complanata*, but is sometimes found in the same waters.

We first discovered it in the river *Avon* about *Lackham* in *Wiltshire*, but all dead and bleached white; which seems to be the character of this shell in that state. We do not, however, believe they inhabit that river, but are brought into it in the time of floods; though we could never find it elsewhere, amongst the other species, which is common in that neighbourhood. We afterwards found it near *Wareham* in *Dorsetshire*, where it is not uncommon in the meadows close to that town, in the isle of *Purbeck*, in ditches and water courses; in company with the *complanata*. These were covered with a dusky-green *epidermis* when alive. It is, doubtless, found in other places, as we have seen it in several cabinets of *English* shells, mixed, and confounded with the *complanata*, under the title of *Helix Planorbis*.

Animal pale, of a yellowish tinge, with two long, slender, setaceous *tentacula*; with the eyes placed at their base, beneath. Differs from the animal of *H. complanata* in the *tentacula* being somewhat longer, and particularly in their being pellucid yellow, and not darker in the middle.

Helix



## VORTEX.

## Helix Vortex.

*Lin. Syst.* p. 1243.—*Gmel. Syst.* p. 3620.*Chem. Conch.* ix. t. 127. f. 1127.*Schroeter Flussconch.* p. 218. t. 5. f. 16. 17.*Lister Conch.* t. 138. f. 43.*Id. Angl.* t. 2. f. 28.*Petiv. Gaz.* t. 92. f. 6.*Gualt.* t. 4. G. G.*Br. Zool.* t. 83. f. 124.*Pult. Cat. Dorset.* p. 47.*Turt. Lin.* iv. p. 508.*Don. Br. Shells.* iii. t. 75.Helix Planorbis. *Da Costa.* p. 65. t. 4. f. 12.Planorbis Vortex. *Muller Verm.* ii. p. 158. No. 345.

H. with a sub-pellucid, very depressed, horn-coloured shell: volutions six or seven, placed lateral; the upper side concave; base or under side flat, and even, the whirls being only marked by a very fine line; the exterior volution is sub-carinated, or brought to an edge at the lower part: aperture compressed, sub-oval, angulated. Diameter three-eighths of an inch, rarely half an inch.

This is a very common species in rivers, ponds, and watery ditches, adhering to aquatic plants under water.

It is readily distinguished from any other *British* shell by the number of volutions, which exceeds any of the depressed *Helices*, and is much more flat in proportion, to its size, the *H. Spirorbis* excepted, with which it has been confounded. Its usual colour is light-horn, but is sometimes rufous-brown; and often covered with a dusky,



dufky, or greenish *epidermis* when alive: dead fhells become white.

Animal dufky, with two long, flender, filiform, *tentacula*; and two black eyes placed at their bafe.



63.

SPIRORBIS.

*Helix Spirorbis.* *Gmel. Syst.* p. 3624. 36.

*Planorbis Spirorbis.* *Muller Verm.* ii. p. 161. No. 347.

*Schroeter Fluffconch.* p. 236. No. 47.

*Id.* p. 229. t. 5. f. 18.

H. with a deprefsed, fub-pellucid, horn-coloured fhell, with fix volutions, placed exactly lateral upon each other, fo that both the upper and under fides are equally flat; the volutions, however, are as much convex beneath as they are above, and the exterior whirl is nearly round, and deftitute of any *carina*: aperture oval, in fome nearly orbicular. Diameter of the largeft three-tenths of an inch.

This fpecies is not uncommon in the fame place as the *H. Vortex*, with which it has generally been confounded in *English* cabinets.

MULLER has very well defined the diftinction by faying, "*Planorbis testa flavescente, utrinque concava, æquali; anfractibus teretibus.*" This, when compared with his leading characters of the *Vortex*, will be found to be  
 ftrong



strong specific distinctions. "*Planorbis testa flavofusca, sub-carinata, supra concava, subtus plana.*"

It is somewhat extraordinary that SCHROETER should have given a figure of this shell, and a very exact description, with the title of, "*Cornu ammonis 6 gyris rotundis circumscriptum,*" making a comparative distinction between it and the *Vortex*, and yet had not discovered it to be the *Spirorbis*, as is evident by his describing that shell in another place.

This species never grows so large as the *Vortex*, but both are alike finely striated, or wrinkled, across the volutions in an oblique direction; and the number of whirls are equal in shells of the same size.

The *Spirorbis* is never carinated like the *Vortex*, consequently the aperture is not angulated at the exterior margin, as in that shell: this too has the volutions raised, and rounded equally on both sides, and a deep separating line; the other has the volutions on the under side quite flat, and the line of separation not so deep; besides which, this is not quite so thin or depressed as the *Vortex*, when compared with that shell of the same size.

These distinguishing characters are invariable, and by which both species may be readily known from each other.

This has generally been described as the more rare, but we believe it is equally plentiful in *England*, at least  
it



it has as frequently occurred to us; sometimes in the same pools with the *Vortex*, and at other times in separate places.



64.

CONTORTA.

Helix contorta.

*Lin. Syst.* p. 1244.*Gmel. Syst.* p. 3624. 37.*Chem. Conch.* ix. t. 127. f. 1126.*Petiv. Gaz.* t. 92. f. 8.*Turt. Lin.* iv. p. 511.*Schroeter Flussconch.* p. 243. t. 5. f. 29.*Don Br. Shells.* iii. t. 99.Planorbis contortus. *Muller Verm.* ii. p. 162. No. 348.

Helix crassa.

*Da Costa* p. 66. t. 4. f. 11.

Helix umbilicatus.

*Pult. Cat. Dorset.* p. 47.

H. with a depressed, sub-pellucid, brown, horn-coloured shell; sometimes rufous, or chestnut, and not unfrequently covered with a dusky *epidermis* when alive: dead shells become white. It has five or six volutions placed lateral; the outer one rounded, not carinated; these all rise on the upper part almost to an edge, being very close together, with only a very small, but deep depressed line between; in the centre a *sub-umbilicus*: the base, or under part, is largely and deeply umbilicated, shewing every volution, spirally descending to the bottom in a very elegant manner: aperture arcuated, by clasping the body whirl. Diameter two-tenths of an inch, and not quite one tenth thick.

N n n

DA COSTA



DA COSTA, as well as DOCTOR PULTENEY, has fallen into an error in quoting the *H. complanata* of LINNÆUS for this shell: and the last author is equally mistaken, in considering the chesnut-coloured variety of this species to be the *H. paludosa* of DA COSTA. It is at once distinguished from any of the *Helices* with a depressed *apex*, by its thickness in proportion to its size; and particularly by the singularly large, and spirally formed *umbilicus*.

There can be no doubt this is the *H. contorta* of LINNÆUS; CHEMNITZ has given a very good figure of it for that shell, which GMELIN quotes: MULLER and SCHROETER have also considered it as such.

It is rather a local species; but we have found it not uncommon in the river *Avon*, about *Lackham* in *Wiltshire* after floods; having been swept from the ditches in the neighbouring meadows, where it is found alive in abundance.

Is common also in the ditches in the isle of *Purbeck* near *Wareham*, and at *Charmouth* in *Dorsetshire*.

We have also received it from *Kent*.

Animal dusky, with two long and very slender, filiform *tentacula*, with the eyes placed at their base.

Helix



*Helix umbilicata* quatuor anfractibus apertura subrotunda. ALBA.

*Walk. Min. Shells.* f. 19.

*Helix alba.* *Gmel. Syst.* p. 3625.—*Turt. Lin.* iv. p. 511.

*Petiv. Gaz.* t. 92. f. 7.

*Planorbis albus.* *Muller Verm.* iii. p. 164. No. 350.

*Schroeter Flussconch.* p. 225. t. 5. f. 12.

H. with a sub-pellucid, light horn-coloured shell, covered when alive, with a brown *epidermis*, that renders it opaque: volutions four, placed lateral, compressed: the outer one rather inclining to an edge, but is not carinated: on the upper part, the *apex* is depressed into a *sub-umbilicus*: the base more strongly umbilicated: the whole shell, when examined by a common magnifying glass, is observed to possess very fine striae, both transverse and longitudinal, in a slightly decussated manner: aperture sub-orbicular, sub-lunated, clasping the body whirl; margin thin, oblique.

This species, which is described and figured by WALKER, we originally received from Mr. BOYS of *Sandwich* for such: and have since found it of a much superior size, rather exceeding a quarter of an inch in diameter; which is more than double that which Mr. WALKER took his figure from.

It is one of the most common of the compressed species of *Helix*; is plentiful in the river *Avon* about *Lackham* in *Wiltshire*, as well as in the fish-ponds; and in many other places in the same county, especially at *Wedhampton*, in ditches and ponds, of a superior size.



We have also found it both in the north and south of *Devonshire*; in *Dorsetshire* about *Wareham*; and have received it from *South Wales*.

Young shells have only three volutions, but are readily distinguished in all states, by their extremely fine striae, which give them a sort of roughness.

Animal of a light colour, with two long, slender, filiform *tentacula*; and two black eyes, placed at their base, on the top of the head.

66.

CRISTATA.

VIG. I.

Fig. 7. 8.

*Helix cornea quatuor anfractibus apertura rotunda. Walk.*

*Min. Shells. f. 18.*

*Valvata cristata. Muller Verm. ii. p. 198. No. 384.*

*Schroeter Flussconch. p. 240. t. 5. f. 26. a. b.*

H. with a sub-pellucid, light horn-coloured shell, with three, and sometimes four, depressed volutions; the *apex* very little sunk; base, or under part umbilicated, exposing nearly the whole of the interior whorls: the volutions are remarkably rounded, or cylindric, and are striated, or slightly wrinkled transversely: aperture perfectly orbicular, attached to, but not interrupted by, the body whorl; margin not thinner than the rest of the shell, and very little oblique. Diameter one tenth of an inch.

This species we also received originally from Mr. Boys, for the shell given by WALKER, as referred to, but



but have since found it not uncommon in drifted sand, in the river *Avon* with the last, and sometimes on aquatic plants; but more plentiful in a ditch near *Wedhampton* in *Wiltshire*: it may, however, be considered as rather a scarce, or at least, a very local species.

When alive, it is covered with a very thin *epidermis*, which removed, the shell is a little glossy: dead ones become white and somewhat opaque. It is at once distinguished from all others by the cylindric volutions, and perfectly round mouth; and in a living state, by possessing a corneous *operculum*, striated spirally to the centre, but so close as to appear, at first sight, like concentric circles.

The animal too, is different from any we are acquainted with, except that of *Turbo fontinalis*, to which it bears great resemblance. It is dusky above, light beneath, with four *tentacula*, or feelers, two of which are placed as usual in other aquatic *limaces*; these are light-coloured, setaceous; on the right side of the head behind, is a third slender feeler, not quite so long as the others, and close to it, more in the middle of the hind head, is a crest, or plumose appendage, very pellucid, and exquisitely sensible, retracting instantaneously at the least motion: eyes two, placed at the base of the two anterior *tentacula*: fore part of the body bilobated, making the head to appear as if issuing from a sheath, when viewed underneath.

MULLER



MULLER, as well as SCHROETER, has described the singular structure of this animal; the former has made a distinct genus of it, under the title of *Valvata*.

These shells are frequently taken up by the *larvæ* of *Phryganææ* to cover their cases: such is mentioned by MULLER; we have seen those cases wholly covered with this, as well as most other of the small *Helices*, laid in regular order with their apertures all placed one way: and not unfrequently three or four species on one case.

67.

FONTANA.

Tab. 6. f. 6

*Helix fontana*. *Phil. Trans.* LXXVI. t. 2. f. 1. to 4. (*Lightfoot*)

H. with a pellucid, horn-coloured shell, extremely flat, but nearly equally convex on both sides, yet depressed in the centre; the base furnished with a small, perfect umbilicus: volutions four; the outer one is brought to an edge, but not properly carinated, as it is formed only by the gradual slope of the shell on each side: it is smooth, glossy, and almost destitute of wrinkles: aperture contracted, and nearly brought to an angle externally; the internal angles clasp the body whirl nearly equal on both sides, taking in half the diameter of the first volution: margin very thin, and much oblique. Breadth not quite two tenths of an inch.

This species has been confounded with the *Nautilus lacustris*, to which it bears much resemblance externally,



ly, but is flatter, and not so convex on the upper part, and is at once distinguished from that shell in not possessing those lines which mark the concamerations.

It was first noticed by Mr. AGNEW, gardiner to the *Dutchess Dowager of Portland*; and was given in the *Philosophical Transactions* of 1786 by Mr. LIGHTFOOT, who states it to be met with in clear waters in the neighbourhood of *Bullstrode* in *Buckinghamshire*.

We have found it sparingly in the ditches about *Wareham* in *Dorsetshire*; and near the village of *Wedhampton* in *Wiltshire*; but have observed it in greater abundance in a fish-pond at *Lackham* in the same county, and in the river contiguous, adhering to aquatic plants; frequently deep in the water.

It appears to be a local species, and not very plentiful any where; though we are informed it is not uncommon about *Sandwich* in *Kent*; from whence we were favoured with it by Mr. BOYS.

Animal light chestnut: *tentacula* two, long, slender, filiform, lighter coloured than the body; eyes placed on the upper part of the head at their base: head long; *sustentaculum* shorter than the *tentacula*.

From the extreme pellucidity of the shell, a strong and regular pulsation is observable (by the assistance of  
a com-



a common pocket lens) in that part of the animal within the second volution; and which is of a reddish chesnut. When the animal is in motion (which is very flow) the exterior whirl appears almost empty.

68.  
NAUTILEUS.

- Turbo nautilus. *Lin. Syst.* p. 1241.  
*Gmel Syst.* p. 3612. 98.  
*Turt. Lin.* iv. p. 501.  
*Chem. Conch.* ix. t. 123. f. 1077. A. a.
- Planorbis imbricatus. *Mull. Verm.* ii. p. 165. No. 351.  
*Schroet. Flussconch.* p. 238. No. 50.
- Helix *Walk. Min. Shells.* f. 20. & 21.
- Helix carinata. *Turt. Lin.* iv. p. 510.  
*Adams. Microsc.* t. 14. f. 10
- Helix spinosa. *Turt. Lin.* iv. p. 525.  
*Adams Microsc.* t. 14. f. 11.—*Id.* t. 22. f. 39.

H. with a pellucid, light horn-coloured shell, much depressed, with three or four volutions; upper side flat, but the whirls well defined by the separating line; *apex* not sunk below the rest of the shell: under side largely umbilicated.

It is furnished with distant, elevated annulations, or ribs, which seem to be partly testaceous, and partly membranaceous, for they are stronger, and more perfect, when the shell is covered with a dark brown *epidermis*; in which state a dorsal ridge or sub-carinated edge, of a mem-



a membranaceous nature, is observed, which frequently shoots into spines of the same texture.

This circumstance is not so common, and seems to depend either on age, or on the water it inhabits: in some places it is found only of a light, pellucid horn-colour; in others always dark-brown. It is subject also to some variation in the aperture; this, however, is generally round, not interrupted by the volution; sometimes, indeed, it projects, and does not adhere; others clasp the body whirl a little, and are somewhat compressed into a sub-oval. These last must be considered as mere varieties. It is distinguished at once by the distant annulations, though not always conspicuous without being considerably magnified. These varieties had induced Mr. WALKER to make them into two distinct species.

LINNÆUS, in the tenth edition of his *Systema Naturæ*, had made it a *Nautilus* under the title of *Crista*, and afterwards removed it into the *Turbo* genus. In this respect we have deviated from that great naturalist, by making all the depressed shells *Helices*, without regard to the mouth; a character in itself extremely vague, though perhaps it will be very difficult to find a better, for the division of the two *genera* so nearly connected.

We originally received several of these shells from our friend Mr. BOYS, for those of the *minuta rariora*, who

O o o

observed,



observed, they were not uncommon in the ditches about *Sandwich*. We have also found it, of a larger size than usual, in a pond at *Wedhampton* in *Wiltshire*, with the *Helix alba*. Diameter one eighth of an inch.

In a pond at *Knowle*, near *Kingsbridge* in *Devonshire*, it is in profusion; these are of a light colour, with a greenish tinge, and rarely spined; but the ribs are frequently very conspicuous, especially on the under part: and in a ditch of running water, which occasionally flows from the pond, they are equally abundant, of a dark colour, and strongly spined along the dorsal *carina*; an evident proof that this variety is occasioned by adventitious circumstances, such as the nature of their food, and quality of the water they inhabit. It is found on the under side of the leaves of many sub-aquatic plants, but seems partial to the creeping *Water-parsnep*, *Sium nodiflorum*, and *Water-creffes*, *Sisymbrium Nasturtium*.

Animal of a pale colour; *tentacula* two, fetaceous; eyes on the head, situated at the base of the *tentacula*.



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 GEN. XXIX.

 NERITA.
 

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*Animal a LIMAX.*

SHELL univalve, spiral, gibbous, flattish beneath.

Aperture semi-orbicular; lip of the *Columella* transverse, flattish and truncated.

1.

*Nerita littoralis.* *Lin. Syst.* p. 1253.—*Gmel. Syst.* p. 3677. LITTORALIS.

*Br. Zool.* t. 87. f. 143.—*Turt. Lin.* iv. p. 550.

*Lister Conch.* t. 607. f. 39. to 42. & f. 44.

*Id. Angl.* t. 3. f. 11 12. 13.

*Da Costa.* p. 50. t. 3. f. 7.—t. 4. f. 2. 3.

*Don. Br. Shells.* i. t. 20. f. 2.

*Turbo neritoides.* *Lin. Syst.* p. 1232.—*Gmel. Syst.* p. 3588. 2.

*Chem. Conch.* v. t. 185. f. 1854. No. 1. to 11.

*Turt. Lin.* iv. p. 479.

*Pult. Cat. Dorset.* p. 44.

N. with a thick, strong shell; colour various, commonly plain light, or orange-yellow, red, or brown; sometimes prettily mottled, or chequered brown, or yellow and white, and rarely fasciated; volutions four or five, the first very large, the others small and placed la-

O o o 2

teral,



teral, sometimes quite flat; others are somewhat produced, but the separating line is very small, and scarce discernable at the *apex*: aperture sub-orbicular, sub-lunated, sometimes inclining to oval; margin thickened within, the edge sharp. It is not so flat at the pillar lip as usual in shells of this genus, but spreads a little at that part. Length three-quarters of an inch; breadth not quite so much.

This species is extremely common on all our shores: is subject to great variety, both as to colour and shape, which seems to have occasioned some confusion, as there is little doubt but the *Nerita littoralis* and *Turbo neritoides* of LINNÆUS are only varieties of the same shell.

2.  
PALLIDULA.

*Nerita pallidulus.* *Da Costa.* p. 51. t. 4. f. 4. 5.

*Don. Br. Shells.* i. t. 16. f. 1. 1.

*Nerita pallidula.* *Turt. Lin* iv. p. 548.

N. with a sub-pellucid, light-brown shell, with three volutions, the first extremely large, the others very small, and placed lateral, scarcely produced, but well defined; is when alive covered with a rough brown *epidermis*, beneath which the shell is nearly smooth, or faintly wrinkled: aperture semi-lunated; outer lip thin, fringed by the *epidermis*; pillar lip thick, white, concave, and umbilicated; inside glossy. Length near half an inch; breadth three-eighths.

DA COSTA was the first writer who described this species,



species, and says, he received it from *Kent*, and *Dorsetshire*, but considered it as a rare shell. We have found it at *Falmouth* in *Cornwall*, and at *Teignmouth*, and *Milton* sands on the south coast of *Devonshire*.

It is certainly a rare species, at least those of any size; though not unfrequent at the last mentioned place, about the bigness of a hempseed. Dead shells become yellowish-white, and somewhat opaque; and in old specimens it is observable, the pillar lip is less concave, and the *umbilicus* smaller.

This shell was first sent to the *Dutcheſs of Portland* by Mr. Boys, and was numbered 125 in her grace's cabinet of minute shells. We have also been favoured with it from the same quarter, and are assured, it is found alive on the rocks of *Dover* and *Margate*.



3.

*Nerita glaucina*. *Lin. Syst.* p. 1251 — *Gmel. Syst.* p. 3671. 3. GLAUCINA.

*Chem. Conch.* v. t. 186. f. 1856. 1859.

*Lister Conch.* t. 568. f. 19 — *Id. Angl.* t. 3. f. 10.

*Br. Zool.* t. 87. f. 141. — *Turt. Lin.* iv. p. 545.

*Pult. Cat. Dorset.* p. 50

*Don. Br. Shells.* i. t. 20. f. 1.

*Cochlea Catena.* *Da Costa.* p. 83. t. 5. f. 7.

N. with a strong, smooth, glossy shell, faintly wrinkled, of a livid or purplish flesh-colour, sometimes ferruginous, or chefnut. about the *apex*: some are plain, but most times marked with spots or streaks in girdles; these



these are rarely seen in full grown shells on the body whirl, but in young specimens, which are usually white, these markings are extremely elegant, but vary in shape and colour: volutions six, the first very large and ventricose, the others small in proportion, rounded, produced, and placed somewhat lateral: *apex* very sharp pointed: aperture sub-oval, sub-lunated; outer lip rather thin, even; pillar lip thick, reflexed, forming a large and deep *umbilicus*; mouth closed by a corneous *operculum*. Length an inch and a half; breadth somewhat less.

This species seems principally to inhabit the deep, as it is thrown up in vast abundance on many parts of our open shores; is common on most of our sandy coasts, but no where more plentiful than on those of *South Wales*, and *Devonshire*.

4.

FLUVIATILIS.

*Nerita fluviatilis*. *Lin. Syst.* p. 1253.—*Gmel. Syst.* p. 3676.

*Chem. Conch.* ix. t. 124. f. 1088.

*Br. Zool.* t. 87. f. 142.—*Gualt.* t. 4. L. L.

*Lister Conch.* t. 607. f. 43. & t. 141. f. 38.

*Id. Angl.* t. 2. f. 20.—*Turt. Lin.* iv. p. 549.

*Schroet. Flussconch.* t. 5. f. 5. to 10.—& t. *Min.*

C. f. 8.—*Mull Verm.* ii. p. 194. No. 381.

*Da Costa.* p. 48. t. 3. f. 8.

*Favan.* t. 61. D. 3. 4. 17. 20.

*Pult. Cat. Dorset.* p. 50.

*Hill. Swammerd.* p. 83. t. 10. f. 2.

*Don. Br. Shell.* i. t. 16. f. 2.

*Nerita*



*Nerita lacustris*. Gmel. Syst. p. 3677?—Gualt. t. 4. M. M.  
Turt. Lin. iv. p. 550.

N. with a sub-pellucid, sub-oval shell, elegantly spotted, streaked, or mottled with white and purplish-brown, pink, or pale-brown; with all the intermediate shades, for scarce two are found alike, either in colour or markings; some have one or two spiral bands: volutions three, the first extremely large, the others very small, but well defined, and placed lateral; *apex* minutely small, a little produced: is frequently covered with a brown or greenish *epidermis* when alive, which removed, the shell is glossy and smooth, except examined by a lens, when it is found to be finely wrinkled: aperture lunated; outer lip thin; pillar lip broad, flat, and white; mouth closed by a testaceous *operculum*, of an orange-yellow. Length three eighths of an inch; breadth two-eighths.

This species is found plentiful in many of our flow rivers, adhering to stones, but rarely in rapid waters; and of course, seldom or ever seen in the mountainous parts, where the rivers are torrents. In such are only to be found the *Mya margaritifera*, for rarely any other shell is to be met with where that inhabits, except *Patella fluviatilis*.

There seems very little doubt that the *Nerita lacustris* is a mere variety of this shell; the only figure referred to by GMELIN is that given by GUALTERI, neither which, nor its description, give any reason to suppose it distinct.

When



When alive it is frequently corneous, or blackish, spotted with white, as described by GMELIN: such are now before us, but can only be considered as one of the numerous varieties the *fluviatilis* is subject to.

5.  
PELLUCIDA.

N. testa lævi pellucida, anfractibus tribus. *Lin. Trans.* iii.  
p. 67 (*Adams.*)

Shell smooth pellucid, with three whorls, *Pembroke-shire* coast. *Turt. Lin.* iv. p. 550.

6.  
ALBA.

N. testa lævi sub-pellucida, duobus anfractibus. *Lin. Trans.*  
iii. p. 67. (*Adams.*)

Shell smooth sub-pellucid, with two whorls. *Pembroke-shire* coast. *Turt. Lin.* iv. p. 550.

These two minute species we have given on the authority of Mr. ADAMS; at the same time think it proper to remark, that there does not appear any distinguishing character; for if shells are to be separated by being a little more or less pellucid, or by one spire more or less, species would be multiplied without end. At the same time we are inclined to give Mr. ADAMS credit, yet in many instances we consider he has mistaken the fry of some, for distinct species; and suspect in these two instances the young of *Nerita glaucina* may be referred to: such are not uncommon amongst sand on many of our shores.

GEN.



GEN. XXX.

HALIOTIS.

*Animal a LIMAX.*

SHELL univalve, auriform, dilated.

Spire flat upon the shell, lateral.

Disk longitudinally perforated with several holes.

1.

TUBERCULATA.

*Haliotis tuberculata.* *Lin. Syst.* p. 1256.

*Gmel. Syst.* p. 3687. 2.

*Martini Conch.* i. t. 16. f. 148. 149

*Lister Conch.* t. 611. f. 2.

*Id. Angl.* t. 3. f. 16.

*Br. Zool.* t. 88. f. 144.

*Pult. Cat. Dorset.* p. 50.

*Don Br. Shells.* i. t. 5.

*Turt. Lin.* iv. p. 558.

*Haliotis vulgaris.* *Da Costa* p. 15. t. 2. f. 1. 2.

H. with a strong, thick, opaque, rough, shell, of a reddish-brown colour, and sometimes mottled, when cleared of

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extrane-



extraneous matter with which it is covered, particularly *Balani*, and *Serpulæ*; especially *S. granulata*, and *Sinistrorsa*: the shape is oval, flat, striated longitudinally, and wrinkled transversely: near the inner margin is a ridge the whole length of the shell, which terminates in one spiral turn at the end, a little produced; this ridge is beset with tubercles, which increase in size as they recede from the *apex*, and become flat or concave; the last six, and sometimes as many as nine, are pervious: below the ridge is a depression or furrow; behind which the margin is rounded, and turns inward; the front margin is thin. The inside is entirely open, concave, and of a beautiful mother of pearl: the inflected edge forms a flat rim on the interior side, quite up to the spire, and is naced like the inside. Length from three to four inches; breadth from two and a quarter to three inches.

This species probably inhabits the deep, as we have not been able to learn that it has ever been taken alive on our coasts; though it is sometimes thrown upon our shores after violent storms, in *Suffex*, *Dorsetshire*, and *Devonshire*. In *Guernsey* it is found in great plenty, adhering to the rocks at the lowest ebb; the animal used for culinary purposes, and the shells adorn the houses of some of the common people, being fludded in the plaster on the outside.



GEN. XXXI.

PATELLA.

*Animal a LIMAX.*†

SHELL univalve, sub-conic, usually destitute of any spire.

1.

*Patella vulgata.* *Lin. Syst.* p. 1258.—*Gmel. Syst.* p. 3697. VULGATA.

*Martini Conch.* i. t. 5. f. 38.

*Br. Zool.* t. 89. f. 145.

*Pult. Cat. Dorset.* p. 51.

*Lister Conch.* t. 535. f. 14.

*Id. Angl.* t. 5. f. 40.

*Don. Br. Shells.* t. 14.

*Turt. Lin.* iv. p. 565.

*Borlase Cornw.* t. 28. f. 3.

*Patella depressa.* *Br. Zool.* t. 89. f. 146.—*Turt. Lin.* iv. p. 566.

*Patella vulgaris.* *Da Costa.* p. 3. t. 1. f. 1. 2. 8.

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† The animals of this class do not appear materially different; those examined were like the *Limaces* inhabiting convoluted aquatic shells, possessed of only two *tentacula*, and the eyes situated at their base.



P. with a sub-conic shell, subject to much variety in its degree of elevation, in the prominence and number of ridges, and in the indentations at the margin; so much so as to have occasioned it to be multiplied into two or three different species. The full grown shells are usually of a conic shape, and somewhat oval; the vertex approximating rather to the smaller end, but frequently nearly central, marked with numerous fine striæ from the *apex* to the margin; which last is sometimes indented a little, sometimes quite plain: colour brown, or corneous. Inside smooth, glossy, and of a yellowish horn-colour, whitish at the bottom.

Others are more depressed; vertex placed more to one end, and the whole shell furnished with strong elevated ribs, with intermediate striæ; the margin strongly indented, and angulated by the ribs: outside, when cleaned, frequently streaked or rayed with brown: inside of old shells white, but in young ones of a deep chocolate-brown, with white streaks at the margin. These are the most essential varieties, and would certainly appear very distinct, were it not for the intermediate gradations, that seem to run into each other, and which has obliged later writers to consider them the same. It is proper, however, to remark, that these varieties (if they are really such) have nothing to do with size or age, for we have found the depressed ones nearly as large as those of a conic shape; and which are always more or less ribbed; whereas the latter are more properly striated;



ed; and are rarely indented, or angulated at the edges, or only faintly so. These too are always, when alive, of a horn-colour within, and not white or brown like the others: but whether they are really distinct is not easy to determine. Both inhabit all our rocky shores in vast abundance; the largest we ever saw were on the rocks at *Marazion* in *Cornwall* of the conic kind: some of which were near two inches and a half long, two broad; and an inch and a half in height.

We have also found the depressed ones two inches in length, by one and three-quarters broad; and not above three-quarters of an inch in height; with the ribs exceedingly strong, and angulated at the margin.

2.

PELLUCIDA.

*Patella pellucida.* *Lin. Syst.* p. 1260.

*Gmel. Syst.* p. 3717. 133.

*Chem. Conch.* x. t. 168. f. 1620. 21.

*Don. Br. Shells.* i. t. 3. f. 1.

*Lister Conch.* t. 542. 543. f. 26. 27.

*Id. Angl. App.* p. 38. t. 2. f. 10.

*Br. Zool.* t. 90. f. 150.

*Pult. Cat. Dorset.* p. 51.

*Borlase Cornwall* t. 28. f. 1. 2.

*Turt. Lin.* iv. p. 582.—*Petiv.* t. 75. f. 3.

*Patella coeruleata.* *Da Costa.* p. 7. t. 1. f. 5. 6.

*Patella lævis.* *Br. Zool* t. 90. bottom fig. without number

*Patella intorta.* *Id.* t. 90. f. 148.

*Patella caerulea.* *Gmel. Syst.* p. 3697. 24.

P. with



*P.* with a pellucid, thin, yellowish, horn-coloured shell, of an oval shape, rounded at the top, with an obscure *apex* at one end; and beautifully rayed with dotted lines of azure: these lines vary in number, usually from three to seven, that are most conspicuous, running from behind the beak to the margin; but the sides in some are radiated in an obscure manner.

This is the description of the young shells, and such as have generally been considered as the *P. pellucida*.

Old shells are sub-pellucid, and most frequently dusky-brown; some are conic, others quite flat with the vertex nearly central, or a little to one end, radiated with blue in the same manner as the young, but the colour is less brilliant, and frequently very obscure: these blue rays, in some, rise into fine elevated striæ all round the shell, terminating at the *apex*; besides which it has some circular wrinkles: aperture oval, margin plain, rather inclining upwards at each end. Inside glossy, of a changeable opalacious colour, frequently of a blueish cast. Length near an inch; breadth not quite three-quarters.

Nothing can be more different in appearance, as to shape, than this species is in its infant and adult states; and were it not for the regular gradations, would probably have continued to be formed into two or three species; as Mr. PENNANT has done with respect to his *P. lævis* and *intorta*. He is however not singular in this,  
for



for other authors have considered some varieties of this shell as distinct species: the *P. caerulea* of GMELIN is certainly nothing else than a full grown shell.

It is remarkable, however, that the very thin transparent shells have the bottom, or margin, always even, and not turned upwards at the end; and yet some, not half the size, are more opaque, and have all the shape of full grown ones.

It has also been remarked, that the pellucid variety is always found on the leaves, and the others on the stalks of *algæ*; however this may be, there appears no possibility of fixing a permanent distinction.\*

It is a common species on many parts of the *Cornish* and *Devonshire* coasts: is never found adhering to rocks, but we have frequently taken it alive after storms, adhering to the *Fucus digitatus*, that has been thrown up by the violent agitation of the sea. It is not uncommon on the coast of *Dorsetshire*; and we have received it from *Sandwich* in *Kent*, where it is always found on the same plant; the stalk of which the animal excavates, probably as food, and forms a cell; sometimes two or three are found in the same: and Mr. BOYS assures us, it

\* Variety of situation will occasion variety in shape; while young it feeds only on the leaves, and their shape at the margin corresponds with the flat surface they adhere to: so when they attack the stalk, they acquire that shape which a convex surface requires for close contact; and which occasions the difference of growth in the old and young shells.



it is occasionally seen on the broad bottom part of the leaf, while the plant is growing on the rocks. We have found the young in clusters on the leaves, but rarely on the stalks, though sometimes on the roots.

3.  
PARVA.

*Patella parva.* *Da Costa* p. 7. t. 8. f. 11.

*Don Br. Shells* i. t. 21. f. 2.

*Turt. Lin.* iv. p. 592.

P. with a thin, sub-pellucid, sub-conic, oval shell, of a blueish-grey, and sometimes horn-colour, tinged with purple; but usually covered with a dark *epidermis*, or extraneous matter, that obscures the shell; it is obsoletely striated longitudinally, wrinkled circularly, and elegantly marked with purplish-red lines, radiating from the *apex* to the margin; in some these lines are broad, in others narrow and undulated, running into each other like the links of a chain; sometimes only visible at the margin, and always most conspicuous in the inside: vertex placed nearest to one end, pointed, reflected, but not curved. Inside smooth, glossy, of a purplish hue. Dead shells become white, and lose all their markings, except two lines immediately above the beak, which join and form the shape of a V. Length three-eighths of an inch; breadth two-eighths; height not quite so much: rarely half an inch long.

DA COSTA seems to be the first author that described this shell; and since by Mr. DONOVAN: the former, however,



however, appears to have only met with dead specimens, by his saying it is whitish in its ground colour, as well as having no gloss within; neither did he seem acquainted with its natural history. The latter author is also silent on this head, and has followed DA COSTA, in stating it to be a production of the *Dorsetshire* coast, the only place he ever received it from. We first found it in sand from *Falmouth* harbour, and *Whitsand* bay, in *Cornwall*, not common, and all dead specimens; and afterwards in great abundance alive, in *Salcomb* bay in *Devonshire*: they always lie near the lowest water-mark, adhering to loose stones, old *oysters*, and other shells, and are mostly obtained by dredging.

It is also found sparingly on other parts of the same coast, thrown upon the shores. We have received dead, and much worn shells, from *Sandwich* in *Kent*.

It seems to be a local species, and has not often been obtained by collectors in a recent state.

DOCTOR PULTENEY does not give it in his Catalogue of *Dorset* Shells, notwithstanding DA COSTA received it from that coast, and has been found by Mr. BRYER at *Weymouth*.

Mr. BOYS informs us, that although only dead shells are to be met with at *Sandwich*, it is found alive on the rocks at *Dover*.

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P. with



4.

## BIMACULATA.

Tab. 13. f. 8.

P. with an opaque, oval shell, of a glossy yellow colour, and perfectly smooth, with only the rudiment of a vertex at the smaller end, marked by a transverse, oblong, black spot; another oblong spot of the same colour near the other end, placed longitudinally: the shell is convex, but not much elevated. Inside concave, smooth, glossy, yellow; margin thin. Length a quarter of an inch; breadth rather more than one eighth; height about one sixteenth of an inch.

We found one of this rare and singular species at *Falmouth* in *Cornwall*; and another, in every respect the same, at *Milton* sands, on the south coast of *Devon*; they were both recent and perfect shells, but not alive.

5.

## FLUVIATILIS.

*Patella fluviatilis.* *Gmel. Syst.* p. 3711. 98.

*Gualt.* t. 4. f. A. A.

*Lister Conch.* t. 141. f. 39.

*Id. Angl.* t. 2. f. 32.

*Da Costa.* p. 1. t. 2. f. 8. 8.

*Favan.* t. 61. A. 3. 4.

*Schroeter Flussconch.* t. 5. f. 1. 2. 3.

*Ancylus fluviatilis.* *Muller Verm.* ii. p. 201. No. 386.

*Patella lacustris.* *Br. Zool.* No. 149.

*Pult. Cat. Dorset.* p. 51.

*Turt. Lin.* iv. p. 577.

P. with a sub-conic, pellucid, horn-coloured shell, usually covered with a dark-brown, green, or dusky  
*epidermis,*



*epidermis*, and marked with a few circular wrinkles: vertex sharp, placed near to one end, reflexed, or somewhat hooked: aperture or opening oval, margin thin, inside glossy. Length three-eighths of an inch; breadth two-eighths; height not quite so much.

A variety is sometimes met with, finely striated longitudinally from the beak; and we received some specimens from a fresh-water stream, near *Folkstone* in *Kent*, more strongly striated than usual; which were considered as a distinct species.

These were of an inferior size, and covered with a dusky *epidermis*: they appear to us to be only a variety, differing in nothing but the striæ being more conspicuous.

This species has generally been considered as the *P. lacustris* of LINNÆUS, the synonyms, however, of GMELIN, are certainly those of the *P. fluviatilis*. It is a very common shell in most of our rivers, and in many small streams and stagnant waters, adhering to stones, and rarely to the leaves or stalks of aquatic plants. Is almost the only shell, we believe, found to inhabit the rapid torrents, with the *Mya margaritifera*. In *Devonshire*, especially in the south, every little stream produces abundance; even the cold rills that originate from springs, and flow down the wooded declivities, except where granite prevails: on the contrary, about the eastern parts



of *Kent*, it has been considered a rare species, and the *P. lacustris* altogether as plentiful; a shell we believe not known so far west as the former county. Such is the locality of nature's stores.

6.

## LACUSTRIS.

- Patella lacustris.* *Lin. Syst.* p. 1260?  
*Gmel. Syst.* p. 3710. 97.  
*Favan. t.* 61. A. 1?—*Turt. Lin.* p. 577.  
*Schroeter Flussconch. t.* 5. f. 4. a. b.  
*Patella oblonga.* *Pult. Cat. Dorset.* p. 51.  
*Phil. Trans. LXXVI.* p. 168. t. 3. f. 1.  
 2. 3. 5. (*Lightfoot.*)  
*Ancylus lacustris.* *Muller Verm.* ii. p. 199. No. 385.

*P.* with a thin, pellucid, compressed, and almost membranaceous shell, of a pale horn-colour, most commonly covered with a greenish *epidermis*: shape oblong: vertex very small, pointed, a little reflected, standing rather oblique, or turning to one side; not quite central, but rather nearest to one end: outside nearly smooth, or very faintly wrinkled, but not glossy: aperture oblong-oval, nearly equal at each end: margin membranaceous. Inside smooth and glossy. Length a quarter of an inch, or rather more; breadth one eighth; height about half its breadth.

Doct<sup>r</sup> PULTENEY says, this shell is found on plants in the river *Stour* in *Dorsetshire*, and has quoted the *P. fluviatilis* of GMELIN and MULLER, in which we think



think the Doctor has erred: the latter author has well defined this shell No. 385, where he says "*Ancylus testa membranacea mucrone verticis subcentrali, apertura oblonga*. It differs from the *fluviatilis* in being much longer in proportion to its breadth, in being much more compressed, and in the vertex being much smaller, placed more central, and always turning a little to one side. It is not near so plentiful a species as the other, never attaches itself to stones, but is always found on plants under water, especially the *Scirpus lacustris* and other rushes, as well as the common reed, *Typha latifolia*, stalks of the common flag, and *Irus pseudacorus*. Is not uncommon upon these plants in the ditches of *Deal* marshes, in *Kent*, particularly on the last, as we are informed by Mr. BOYS; and LIGHTFOOT speaks of its being found on the same plant, in waters near *Beaconsfield*, in *Buckinghamshire*. MULLER says "*Foliis Nymphaeæ, Potamogetonis, & Stratiotis adhæret*."

We have them tolerably plentiful in a fish-pond at *Lackham* in *Wiltshire*; and in the river *Avon*, on the stalks of the *Yellow water-lily*; but is rarely, if ever, found in rapid waters, in which the *fluviatilis* seems most to delight.



7.

*Patella antiquata*. *Lin. Syst.* p. 1259.—*Gmel. Syst.* p. 3709? ANTIQUATA.

*Martini Conch.* i. t. 12. f. 111. 112.

Tab. 13. f. 9.

*Lister Conch.* t. 544. f. 31.

*Patella*



*Patella antiquata.* *Pult. Cat. Dorset.* p. 51.

*Patella Mitrula.* *Gmel. Syst.* p. 3708.

*Turt. Lin.* iv. p. 575.

P. with a strong, thick, opaque, white shell, somewhat of a conic shape, furnished with concentric, imbricated wrinkles: vertex varying; sometimes obliquely pointing upwards, often extended and recurved; and frequently obtuse, and placed near to one end: aperture oval, sometimes nearly round. Diameter about half an inch.

Doct<sup>r</sup> PULTENEY informed us, this shell had been found at *Weymouth* after a severe storm, by Mr. BRYER of that place; and in a list of the shells found by this gentleman on that coast, which he obligingly favoured us with, this is mentioned.

8.

UNGARICA.

*Patella Ungarica.* *Lin. Syst.* p. 1259.

*Gmel. Syst.* p. 3709. 89.

*Martini Conch.* i. t. 12. f. 107. 108.

*Pult. Cat. Dorset.* p. 51.

*Don. Br. Shells.* i. t. 21. f. 1.

*Borlase Cornw.* t. 28. f. 4.

*Gualt.* t. 9. W.

*Patella Hungarica.* *Br. Zool.* t. 90. f. 147.

*Turt. Lin.* p. 576.

*Patella Pileus Morionis major.* *Da Costa.* t. 1. f. 7. 7.

P. with a sub-conic, sub-pellucid, thin shell; vertex much reflected, terminating in a spiral turn underneath, of two

or



or three small wreaths, rarely inclined to either side, except at the *apex*, where the whirls are only visible on that side which makes it a dextral shell; but frequently projects as far as the margin, sometimes quite low, and almost touching that part; others are more considerably elevated.

In a live, or recent, state, it is covered with a rough, pilous *epidermis*, of a brown colour; beneath which the shell is of a deep flesh-colour, inclining to carnation: finely striated longitudinally, and frequently wrinkled transversely. Inside extremely smooth, and glossy, generally of the same colour, but brighter, sometimes white; margin of the aperture nearly round, more or less undulated or indented, and crenated: the *epidermis*, which projects beyond the margin, forms a ciliated border. Diameter rarely more than an inch; and half an inch, or five-eighths in height.

This is a rare species, and, as far as we have been able to ascertain, is only found on the coasts of the western counties. It has been dredged up at *Weymouth* in *Dorsetshire*; and is sometimes found on the south coast of *Cornwall* and *Devonshire*, especially about *Looe*, and at *Plymouth*; at the latter place, we have taken it by dredging, attached to *Pecten opercularis*, which is commonly called *Frill*. Have also found it on the shore at *Milton* sands, and have obtained it alive from the bay of *Salcomb* in the same county, on the *Pinna ingens*.

One



One specimen, from the last place, is of an extraordinary size, measuring two inches in diameter, and one inch and a quarter in height: it is thick, strong, opaque, and much wrinkled transversely.

Dead shells usually become white, or very little tinged with flesh-colour, are destitute of *epidermis*, and lose the crenated margin.

9.

MILITARIS.

Tab. 13. f. 11.

*Patella militaris.* *Lin. Mant.* p. 553.

*Lister Conch.* t. 544. f. 32.

*Favan.* i. p. 538. t. 4. B. B.

*Pult. Cat. Dorset.* p. 51.

P. with a sub-pellucid, sub-conic, white shell, finely striated both ways, so as to give it a pretty cancellated appearance: vertex much reflected, recurved, and turned to one side, descending almost to the edge of the shell, but projecting beyond it: aperture round, and even. Inside glossy white. Diameter at the base about half an inch.

This species has somewhat the habit of the last, but is not so broad at the base in proportion; and is at once distinguished by the beak turning to one side, by being reticulated, and a much stronger shell. In a recent state it is covered with a brown, pilous *epidermis*.

This is certainly a very rare shell on the *English* coast,  
but



but has been found at *Weymouth* by Mr. BRYER;  
a specimen of which we received from Doctor PUL-  
TENY.



10.

*Patella Chinenfis.* *Lin. Syst.* p. 1257.

CHINENSIS.

*Martini* i. t. 13. f. 121. 122.

Tab. 13. f. 4. 4.

*Lister Conch.* t. 546. f. 39.

*Patella Sinenfis.* *Gmel. Syst.* p. 3692.

*Turt. Lin.* p. 562.

*Patella albida.* *Don. Br. Shells.* iv. t. 129.

*P.* with a very thin, sub-pellucid, sub-conic shell, of a pale-brown, or whitish colour, sometimes tinged with blush, much compressed, and rounded at the margin: vertex central, terminating in a very small, sub-spiral volution: slightly wrinkled concentrically, and rough with short, concave scales, not unusually all over the shell, but commonly most on one side, and rarely towards the top. Inside extremely glossy, smooth, and white, furnished with a sub-spiral *Columella*, or pillar lip, which extends from very near the margin to the end, and forms the external sub-volution; it is broad, flat, thin, and stands oblique to the side of the shell.

There seems very little doubt but this is the *P. Chinenfis* of LINNÆUS. MARTINI gives a figure of it, and quotes that shell; and GMELIN quotes MARTINI for his *P. Sinenfis*.

R r r

This



This species we believe had never been noticed as *British*, when we were first favoured with it by Colonel GEORGE, of *Penryn* in *Cornwall*, in 1795, who took it from an *oyster* shell; and we afterwards found a few others on *oysters* from *Helford* harbour, the same place from which the original came. As far as we have been able to ascertain, it is always attached to those shells, as we have since taken it sparingly in *Salcomb* bay in *Devonshire*: these were alive, adhering very closely to the upper valve. Some are rather more conic than others, but are rarely above a quarter of an inch in height: diameter five eighths of an inch, usually less, having taken it of all intermediate sizes, between that and one tenth of an inch.

DONOVAN gives his as a production of *Cornwall*.

It has been received from *India*, and is a shell of the *Mediterranean Sea*.

11.

FISSURA.

Patella Fissura. *Lin Syst.* p. 1261—*Gmel. Syst.* p. 3728.

*Martini Conch.* i. t. 12. f. 109. 110.

*Lister Conch.* t. 543. f. 28.—*Petiv.* t. 75. 2.

*Br. Zool.* t. 90. f. 152. (number misplaced)

*Da Costa.* p. 11. t. 1. f. 4.

*Pult. Cat. Dorset.* p. 51.

*Don. Br. Shell.* i. t. 3. f. 2.

*Turt. Lin.* iv. p. 592.

P. with



P. with a sub-pellucid, conic shell, of a brown colour when alive, strongly, and elegantly cancellated: vertex a little reflected: distinguished by a longitudinal fissure, or slit at the anterior end, from the margin upwards, about one fourth the length of the shell: Inside smooth, glossy, flesh-coloured; margin oval, crenated. Length half an inch; breadth three eighths; height the same.

In young shells the vertex is much more reflexed, and sometimes slightly hooked, turning backwards almost perpendicular to the posterior margin. Worn shells become white, or pale flesh-colour, and lose their crenated edge.

This appears to be a local species, and seems to be chiefly confined to the western coasts. Doctor PULTENEY mentions it on the shores of *Dorsetshire*; and DA COSTA on those of *Cornwall* and *Devonshire*, particularly at *Barnstable*; but had probably never seen a live, or recent specimen, as he describes it to be white.

We have found it sparingly on some parts of the *Cornish* coast; and more plentiful on that of *South Devon*, obtaining the most perfect specimens by dredging in *Salcomb* bay, adhering to stones, and old *oyster* and other shells; but not common, or of a large size. Have also received small ones from *Sandwich* in *Kent*.



Patella Fissurella. Gmel. Syst. p. 3728. 193?

Turt. Lin iv. p. 592?

R r r 2

12.

APERTURA.

Tab. 13. f. 10.

P. with



P. with a sub-conic, sub-pellucid white shell, marked with strong, longitudinal, tuberculated ribs, and a few circular ridges, that give it a cancellated appearance: vertex reflected, the point very small, and turning downwards: not detached, but adhering to the top of the shell, sometimes making one convolution; immediately above which is a rhomboid perforation. Inside smooth, glossy, white; margin oval, edge crenated by the ribs.

This rare species we first found in sand, from *Falmouth* harbour in *Cornwall*, and afterwards dredged it up alive in *Salcomb* bay, in *Devonshire*, adhering to stones. Length not quite a quarter of an inch, and scarce one eighth of an inch in height.

In one instance this shell had a few brown streaks running half way up from the margin.

At the time the figure was engraved, we were not in possession of so large a specimen as above described.

13.  
GRÆCA.

Patella Græca. *Lin. Syst.* p. 1262.—*Gmel. Syst.* p. 3728.  
*Martini Conch.* i. t. 11. f. 98.  
*Lister Conch.* t. 527. f. 2.  
*Br. Zool* t. 89. f. 153.  
*Pult. Cat. Dorset.* p. 52.  
*Turt. Lin.* iv. p. 593.

Patella reticulata. *Don. Br. Shells.* i. t. 21. f. 3.

Patella Larvæ reticulata. *Da Costa* t. 1. f. 3.

P. with



P. with an oblong, oval, thick shell, of a dull brown colour, strongly reticulated; some of the longitudinal ridges are much coarser than the rest, and are frequently tuberculated by the crossing of the transverse striæ: vertex not much elevated, truncated, and furnished with an oblong perforation. Inside smooth, white, sometimes rayed with dull purple or brown; margin not even, but somewhat indented or arcuated at the sides, and finely crenated. Length about three-quarters of an inch; breadth scarce half an inch; height a quarter.

This shell is rarely found of a superior size on the *English* coast, but foreign specimens are sometimes an inch and a half in length. It has generally been considered as a rare species in this country: DA COSTA speaks of it from *Weymouth*, and observes, that he never could learn that they inhabit any other *British* coast.

DOCTOR PULTENEY also mentions it from the same place, and from *Poole*. We have found it on *Studland* beach in *Dorsetshire*, larger than usual. Is rare in *Cornwall*; but on some parts of the south coast of *Devon* not uncommon, especially on *Milton* sands: and frequently dredged up alive in *Salcomb* bay, but seldom exceeding half an inch in length. It is not unusual on *Sandwich* flats in *Kent*, as we have been assured by Mr. BOYS. Dead shells are most commonly of a pale-brown, or yellowish-white, and sometimes streaked, or spotted with dark-brown.

GEN.



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 GEN. XXXII.

 DENTALIUM.
 

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*Animal a TERESELLA.*

SHELL univalve, tubular, nearly straight; not divided into chambers; and (for the most part) pervious, or open at both ends.

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1.  
DENTALIS.

Dentalium Entalis. *Lin. Syst.* p. 1263.—*Gmel. Syst.* p. 3736.  
*Martini* i. t. 1. f. 1. 2.  
*Lister Conch.* t. 547. f. 2. & t. 1056. f. 4.  
*Br. Zool.* t. 90. f. 154.—*Petiv.* t. 65. 9.  
*Pult. Cat. Dorset.* p. 52.  
*Borlase Cornw.* t. 28. f. 5.  
*Turt. Lin.* iv. p. 601.  
 Dentalium vulgare. *Da Costa.* p. 24. t. 2. f. 10.

D. with a slender, smooth, glossy, sub-arcuated shell, tapering to a small point, pervious: sometimes marked with a few circular wrinkles or annulations: colour white or yellowish. Length an inch and a half; diameter at the larger end two-tenths of an inch; and one fourth as much at the smaller end.

This



This species is found on many of our shores, particularly those of the west of *England*; is not uncommon on the coast of *Sandwich* in *Kent*, and on the sandy flats of *Caermarthenshire*. It is, however, rarely taken alive, even by dredging, from which we may conclude it is a pelagic shell.

A variety is marked with dusky bands: and sometimes a little striated towards the point.



Dentalium Dentalis. *Gmel. Syst.* p. 3736. 3?

*Turt. Lin.* iv. p. 600.

*Born Mus.* t. 18. f. 13.

2.

STRIATUM.

D. with a slender, sub-arcuated, taper shell, very small at the point, and pervious, regularly and closely striated the whole length of the shell; the striae in fresh specimens are very conspicuous, and are about twenty in number: sometimes a few faint annulations are observable at the larger end: colour white, but not glossy. Length half an inch; diameter of the largest part, one line.

We have found this rare species at *Falmouth* in *Cornwall*, and on the south coast of *Devonshire*.

It is readily distinguished from the young of the preceding species, by its being elegantly striated.

D. with



3.

GADUS.

Tab. 14. f. 7.

D. with a sub-pellucid, sub-arcuated shell, tapering to a small point, pervious, contracting a little towards the larger end; is white, glossy, and perfectly smooth, without the smallest appearance of wrinkles or striæ. Length scarce three-eighths of an inch; diameter of the largest part, about one sixteenth.

This is a pelagic species, found in many parts of the *British* channel; and is known to mariners by the name of *Hake's-tooth*, who frequently find it within foundings, adhering to the log line (as we are informed) but most likely to the plumb line.

4.

IMPERFORATUM.

Dentale apice imperforata transversaliter sub-striata. *Walk.*

*Min. Shells.* f. 15.

Dentalium imperforatum. *Adams Microsc.* t. 14. f. 8.

*Turt. Lin.* iv. p. 602.

D. with a cylindric, sub-arcuated shell, striated transversely: aperture round, a little contracted at the margin: the opposite end closed, truncated, and furnished with a small round protuberance: colour white or cinereous. Length one eighth of an inch; breadth one third of its length.

We first received this shell from Mr. Boys, for that of WALKER referred to; and have since found it in sand from *Falmouth* harbour, but rare. Mr. WALKER says from *Sandwich*, not very common.

D. with



D. with a sub-cylindric, arcuated shell, marked with TRACHEA. regular, strong, transverse striæ, or annulations: aper- Tab. 14. f. 10.  
ture round, from whence it tapers a little to the other extremity, which is closed, truncated, and furnished with a small, round protuberance: colour ferruginous-brown, lightest towards the smaller end. Length rather more than one eighth of an inch; diameter one fifth of its length.

This species is at once distinguished from the last, by being more arcuated, and a little tapering; is longer in proportion to its breadth, the margin of the aperture even, and not contracted, and the annulations stronger, giving it the appearance of the windpipe or *trachea* of an animal.

We found it in sand from *Milton* in *Devonshire*, but is extremely rare.



D. with a cylindric, arcuated, smooth, glossy, white GLABRUM, shell, devoid of either striæ or wrinkles, and equal in size throughout: aperture orbicular; the other end closed, rounded, and sub-margined. Length scarce one line; diameter one fifth of its length.

This nondescript species is found amongst the sand at *Biddeford* bay, but more plentiful near *Barnstable*, on the north coast of *Devonshire*, amongst the *rejectamenta* of the river, occasioned by the influx of the tide.

S s s

GEN.



GEN. XXXIII.

SERPULA.

*Animal for the most part a TERESELLA.*

SHELL univalve, tubular, adhering, or affixed to other bodies; (in some species divided into cells.)

\* SPIRAL.

1.  
SPIRORBIS.

Serpula Spirorbis. *Lin. Syst.* p. 1265 — *Gmel. Syst.* p. 3740.  
*Martini Conch.* i. t. 3. f. 21. A. B. C.  
*Lister Conch.* t. 553. — *Gualt.* t. 10. f. O.  
*Chem. Conch.* ix. t. 116. f. 999?  
*Br. Zool.* t. 91. f. 155.  
*Da Costa.* p. 22. t. 2. f. 11.  
*Don. Br. Shells.* i. t. 9.  
*Turt. Lin.* iv. p. 603.

S. with an opaque, white shell, with three or four regular, lateral whirls, rounded on the upper part, and a little wrinkled: umbilicated in the centre: base flat, spreading. Diameter one eighth of an inch.

This



This species is common on stones, shells, and *algæ*, on most parts of our coast.

A variety is not unfrequent with the mouth erect, and sometimes one or two volutions turning a little spirally upwards. These, however, must be considered as accidental distortions, by being obstructed in their general growth.

Animal a *Terebella*, with branched, ciliated *tentacula*, and a clavate, or sub-funnel shaped proboscis, usually of a pale colour.



Serpula Spirillum. *Lin. Syst.* p. 1264.

*Gmel. Syst.* p. 3740.

*Martini Conch.* i. t. 3. f. 20. C. D.

*Turt. Lin.* iv. p. 602.

2.

SPIRILLUM.

S. with a sub-pellucid, glossy, white shell, with two or three sub-cylindric whirls a little wrinkled: these are most commonly placed laterally; umbilicated in the centre, and sometimes pervious; but frequently the mouth turns upwards, and not uncommonly the volutions rise spirally upon each other, attached by the smaller end. Diameter one line.

This species has much the habit of the preceding, but is distinguished from it, by its glossy appearance, being more cylindric, and not spreading at the base. It is

S s s 2

found



found on some species of *algæ*, seldom on stones, shells, or crustaceous animals, like the last, and rarely, if ever, in company with that shell.

On the *Corallina officinalis*, from Milton rocks, is found in great abundance, a minute species of *Serpula*, differing so little from *S. Spirillum*, except in size, that we dare not give it a distinct place, though we are inclined to think it is really different, as it never grows above one third the size of that shell. Although this is found to inhabit the same species of *Zoophyta* as *S. minuta*, yet they are rarely found together.

This very intricate class of shells requires a thorough knowledge of their animal inhabitants; and which, in the smaller species, is attended with a considerable difficulty, for even when collected, put into sea water immediately, and examined upon the spot, few appear to protrude themselves sufficiently for critical notice: indeed it must be admitted, many of the spiral kind are inhabited by animals of very similar appearance.

## 3.

## GRANULATA.

*Serpula granulata.* Gmel. Syst p. 3741.

Turt. Lin. iv. p. 604.

Don. Br. Shells. iii. t. 100.

*Serpula fulcata.* Lin. Trans. iii. p. 254. (Adams.)

Turt. Lin. iv. p. 608.

S. with



*S.* with an opaque, white shell, with two volutions, deeply grooved longitudinally, or in a spiral direction, and transversely wrinkled, especially in the furrows: aperture round. Size of the *Spirorbis*.

This species bears some resemblance to *S. heterostropha*, but is at once distinguished by the whirls not being reversed: the two *fulci* are much deeper, making the upper part of the shell more strongly tricarinated: the inner volution is nearly obsolete, only being marked by the third, or interior ridge.

This is also much more rounded at the top, with only an *umbilicus* in the middle; whereas the other is concave at the top, and the interior volutions conspicuously tapering to a fine point, within the depression. In colour and size too they also differ; this is of a white, like glass enamel, but not so glossy; whereas, the *heterostropha* is of a dull brownish, or dirty-white, and never grows to half the size.

We have found this species in great abundance on the rocks, as well as on the under side of loose stones at *Milton*; and sometimes on old shells from other parts of the coast of *Devonshire*, especially *Arca pilosa*; and have received it from *Guernsey* on *Haliotis tuberculata*, specimens of which we have seen perfectly covered with it, but sometimes in company with a species of *Serpula* very different from any of the genus hitherto described. It has



has one very thick, rounded, glossy, white volution; very convex, and wrinkled transversely, with a minute *umbilicus* at the top, and sometimes only a future.

Not having ascertained this to be truly *British*, we cannot give it a distinct place in this work.

Animal a *Terebella*, of a buff-colour, with ten ciliated rays, and a sub-funnel shaped proboscis at one side, of the same colour, with a brown margin, ciliated, hyaline.

4.  
CARINATA.

S. with a dull, opaque, white, spiral shell; the outer whirl rising into a carinated ridge on the top; the middle concave, sometimes pervious; the interior volutions inconspicuous; base a little spreading: aperture round. Size about half that of the *S. Spirorbis*, from which it is readily distinguished, by the angulated shape of the exterior whirl, which is formed like *S. triquetra*, but always regularly spiral.

This we found on old valves of *Arca pilosa*, with the last, in considerable abundance; and plentiful in *Salcmob* bay, on *Pinna ingens*, and many other shells, especially *Trochus cinerarius* and *parvus*, unmixed with any other species.

5.  
CORRUGATA.

S. with a strong, spiral, white shell, roughened by transverse wrinkles; a small portion of the second volu-  
tion



tion only visible: centre umbilicated: base very little spreading: aperture orbicular. Diameter about one eighth of an inch.

This species is not uncommon on the slate rocks at *Milton*, and sometimes on the under side of loose fragments, in company with *S. heterostropha*. It is a much stronger shell than *S. Spirillum*, and never exposes so much of the interior volution; and, though more wrinkled, possesses a superior gloss, when cleared from extraneous matter.

Animal orange-red, with eight, greenish, ciliated rays; and a sub-funnel shaped proboscis, of the same colour.



6.

*S. testa regulari rotundâ pellucida, tribus anfractibus. Lin. CORNEA.*

*Trans. v. t. 1. f. 33. 34. 35. (Adams.)*

Obs. Brownish horn-colour.

Shell regular, rounded, pellucid, with three whorls.  
*Turt. Lin. iv. p. 608.*



7.

*S. with a strong, spiral shell, of a dull dirty-white colour, with two or three reverse volutions placed laterally, furnished with three longitudinal ridges, one along the back, and another on each side, roughly wrinkled transversely: the base is flat, and somewhat spreading:*

HETEROSTRO-  
PHA.



ing: aperture orbicular, and invariably placed opposite the fun's apparent motion. Diameter not a line.

Is not uncommon upon *oyster* and other shells, and upon *algæ*; sometimes in company with *S. Spirorbis*, but from which it is readily distinguished by the longitudinal ridges, and by the contrary turn of the volutions.

Is found in some parts of *Kingsbridge* bay, on the under side of slate stones, between high and low water-mark, in such vast abundance, that the surface of the stones is covered with them; and in this situation are unmixed with any other species: possibly the sub-saline quality of the water so far up this inlet, at ebb tides, is not congenial to its congeners, for we never found any of the other *Serpulæ* so far up.

8.

SINISTRORSA.

Serpula. *Walk. Min. Shells.* f. 13. 14.

S. with a semi-pellucid, glossy, white shell, with two or three reversed volutions usually placed lateral, but sometimes coiled upon each other: it is somewhat wrinkled transversely, but has no longitudinal irregularities: aperture orbicular. Diameter one line.

The form of this species is much like *S. Spirillum*, but is at once distinguished from it, by the aperture turning the contrary way: it has the same sub-pellucid appearance



ance as that shell, and when recent, has a tinge of red, from the colour of the animal, which is scarlet.

From being a *heterostrophe* shell, it might be more readily confounded for *S. lucida*, but is double the size, not so pellucid, and is broader at the base; this, too, is principally found on crustaceous animals; the other is peculiar to *Sertularia*, especially *S. abietina*; and neither is found in any one instance, to inhabit the place of the other.

Mr. WALKER has figured two, which we consider as only this shell in different stages of growth; he describes them as differing only in the number of spires, one having four, the other two; the last of which he expressly says, is found on *lobsters*. Both are figured as reversed species, a circumstance omitted in the description, but sufficient to confirm our opinion, especially, as we have never observed this shell attached to any thing on our coasts but the common *lobster*, *Cancer Gammarus*, and *spiny lobster*, *C. Homarus*, taken on the south coast of *Devon*.\* It does not constantly occur on those animals, but is sometimes thickly clustered together on various parts of the same subject.



9.

S. with a very small, spiral shell, of a dirty-white colour, with two or three lateral volutions, wrinkled trans-

T t t

versely:

\* On the *Guernsey* coast is sometimes found to inhabit *Haliotis tuberculata*.



versely: sometimes it has a slight, longitudinal furrow, on each side, forming a ridge, or *carina*, along the back. Diameter a quarter of a line.

This, very minute species, is also an heteroclitical shell, and not easily distinguished from *S. heterostropha*, except by its inferior size, rounded base, and habits: this affects only the *Corallina officinalis*, (ELLIS *Coral.* tab. 24. f. 2. and *Zoophytes*, tab. 23. fig. 14. 15.) frequently in abundance, both on stalks and branches.

This *Coralline* is plentiful on the rocks about *Milton*, which are partly of the same stony nature, on which *Serpula heterostropha* is found; but none of that species occur on the rocks contiguous to this *Coralline*; indeed the *S. heterostropha* is rarely exposed, but lies concealed, affixed to the under part of the loose, flat, slate stones: this, on the contrary, is always exposed to the rude action of the waves.

The young of this, as well as most of the longitudinally fulcated, or ribbed species, are quite smooth, and may be easily mistaken.

Animal a *Terebella*, with ciliated feelers, and clavated proboscis, varying in colour from brown to green.

10.  
LUCIDA.

—

*Serpula reflexa.* *Lin. Trans.* v. t. 1. f. 31, 32? (*Adams.*)  
*Turt. Lin.* iv. p. 608.

*Serpula*



*Serpula vitrea.* Gmel. Syst. p. 3746?

Turt. Lin. iv. p. 607.

Ellis Zooph. p. 37.

S. with an irregular, pellucid, glossy, white shell, always more or less spiral; sometimes lateral, with two or three whirls; in others the volutions turn upon each other, with the aperture projecting upward, and not unfrequently the spires are unconnected. Diameter half a line.

This is at once distinguished from all other species, by its extremely smooth, glossy, and vitreous appearance.

It is by no means an uncommon shell, but we believe is peculiar to some species of *Sertularia*, especially *S. abietina*, on which it is almost a constant attendant;\* and sometimes on *S. argentea*: is gregarious and very numerous on the branches of those *Zoophytes*, which are thrown up on most of our coasts, especially in the west of *England*: and we have been assured by Mr. BOYS, (who sent it to us by the name prefixed,) that it is not less common on the coast of *Kent*, on *S. abietina*.

This, though subject to much variety in shape, will be always found to turn its aperture towards the apparent motion of the sun, and consequently is a *heterostrophe* shell.

T t t 2

Animal

\* ELLIS says this *Sertularia* "is frequently infested with little minute shells, called *Serpulas*."



Animal red, with plumose *tentacula* of a pale colour, and two brown spots on the head.

11.

REVERSA.

S. with a sub-cylindric, rugose, white shell, much wrinkled transversely, more or less spiral, and tapering to a small point, but subject to great variety in its turns and windings; sometimes, three or four whirls, pretty regularly placed laterally, making a diameter of half an inch: others have the smaller end projecting, and the larger end coiled, either lateral or upon each other, and open in the middle. Sometimes, the small end turns contrary to the rest of the shell; but it is remarkable, in a species so irregular in growth, that the aperture should almost invariably turn in the reversed direction. Diameter at the larger end, one tenth of an inch.

This is sometimes taken on the coast of *Devonshire*, upon the *Pecten opercularis*, and rarely on *crabs*.

The animal is a *Terebella*, with branched, ciliated *tentacula*, spotted with crimson, which, when spread, almost surrounds a double funnel-shaped proboscis, placed one within the other, the stalk of which is long and slender, and originates on the left side below the *tentacula*: this in some is green, others reddish, the interior funnel is cut in deep longitudinal striæ; external one ciliated round the margin: on the right side, corresponding with the proboscis, is a short, cylindric appendage.

\*\* CON-



## \*\* CONTORTED, IRREGULAR.

12.

Serpula vermicularis. *Lin. Syst.* p. 1266.

VERMICULARIS.

*Gmel. Syst.* p. 3742.*Br. Zool.* No. 159.*Turt. Lin.* iv. p. 605.*Da Costa.* p. 18. t. 2. f. 5.

Serpula intricata.

*Lin. Syst.* p. 1265.*Gmel. Syst.* p. 3741.*Br. Zool.* t. 91. f. 158. (fig. misplaced)*Turt. Lin.* iv. p. 603.*Martini Conch.* t. iii. f. 24. A?

S. with a cylindric, white shell, gradually tapering, generally terminating in a fine point, and wrinkled transversely.

Nothing has puzzled the conchologist more than the four species of *Linnæan Serpulæ* under the denomination of *Vermicularis*, *intricata*, *triquetra*, and *contortuplicata*.

We have collected a vast quantity of these *Serpulæ* single and grouped, angulated and cylindric, with all the intermediate gradations, which connect them so nearly, that were it not for the animals, we should have been induced to have considered them as one and the same species: we have, however, by the animals more than by the shells, formed them into two species: namely, *vermicularis* and *triquetra*.

This



This is to be met with from the size of a sewingthread to that of a swan's quill, as frequently in groups, twisted and contorted in all directions, as single; and is never observed to spread at the base, or to possess the smallest degree of *carina* along the back; and is generally attached its whole length to some other body: this circumstance, independent of the difference in the animals, is the only leading character, by which it may be known from *S. tubularia*, which is attached only in part towards the smaller end, and usually ascends in a considerable angle.

We have seen both these shells most complicatedly entwined with each other, and mixed with *S. triquetra*; and some of the last possessing so little appearance of a ridge along the back, that had not the animals been consulted, it would not have been possible to have divided them. As the animals therefore are the only certain criteria, these shells, as well as many others of this intricate genus, will ever be confounded in cabinets.

It may be thought, that although we have brought four of the *Linnæan* species into two, in some instances we have multiplied others of the *British Serpulæ*: to this it can only be said, that as far as human fallibility will admit, care has been taken to fix characters of distinction, from shape, habits, or animal; except, therefore, in *S. reversa*, we have not a doubt but those described, are really distinct. The inhabitant of that shell, we must  
confess,



confess, is so very similar to the animal of this, that a reference will save the trouble of a repetition: the circumstance of that shell being always coiled in a circular form, and generally in a reversed manner, added to its solitary habit, are strong presumptive evidence of distinction.



13.

TRIQUETRA.

Serpula triquetra.

*Lin. Syst.* p. 1264.*Gmel. Syst.* p. 3740.*Martini Conch.* i. t. 3. f. 25.*Turt. Lin.* iv. p. 603.*Baster Opusc.* i. t. 9. f. 2. A. B.*Br. Zool.* No. 156.

Serpula vermicularis.

*Ellis Corall.* t. 38. f. 2.*Don. Br. Shells.* iii. t. 95.

Serpula angulata.

*Da Costa.* p. 20. t. 2. f. 9.

Serpula contortuplicata.

*Lin. Syst.* p. 1266.*Gmel. Syst.* p. 3741.*Turt. Lin.* iv. p. 604.*Br. Zool.* No. 158. t. 91. f. 157.

(figure misplaced.)

S. with a strong, opaque shell, irregularly twisted and contorted; sometimes nearly straight, or only a little flexuous, roughened with transverse wrinkles, and usually more or less carinated: in some the dorsal ridge is much elevated, and the base spreads so much as to give it a triangular appearance; and, not unfrequently, there are two other smaller ridges along the sides, one on each side the dorsal *carina*.

In



In many instances, however, the ridge along the back is so nearly obsolete, especially in old shells, and such as are grouped, that they would with difficulty be separated from *S. vermicularis*, were it not for the animal; such have been generally confounded for that species, and is figured by ELLIS; but the single, trumpet-shaped proboscis, of the animal, forbids it to be the *S. vermicularis*.

That figured by DONOVAN, appears also to be a *triquetra* for the same reason, but the *tentacula* of the animal are wanting in this figure; though that part is very well represented by ELLIS.

It is with no small difficulty, and in some degree uncertainty, that we have placed the synonyms to this and the preceding species, as heretofore the animals have not been attended to sufficiently, to form the best and surest character of distinction.

If the *triquetra*, and the *Linnæan contortuplicata* be carefully examined, the animals will be found to be the same, possessing only a single, trumpet-shaped proboscis, as represented by ELLIS for the *Vermicularis*: and it will be observed, that all the shells inhabited by such animal, are, whether grouped or single, more or less furnished with a dorsal ridge, though in some of the larger specimens it is scarcely to be discerned, or at least might be passed unnoticed. On the contrary, the *vermicularis* and



and the *Linnæan intricata* never possess the smallest degree of *carina*, and the animal, as before remarked, has a double-trumpet, or funnel-shaped proboscis.

The *Serpula triquetra* is most times of a dirty-white, but sometimes red, or tinged with that colour; such we have in large groups as well as single, a circumstance never having occurred to us in the *vermicularis*.

It is, like the last, equally plentiful on all our coasts, adhering to stones, old shells, crustaceous animals, timber, and various other substances: a specimen in our cabinet, on a piece of glass bottle, is more than commonly spread at the base, as if it was requisite to take a firm hold of so smooth a surface.

The *tentacula* of the animal are two, plumose, or furnished with numerous, ciliated fibres, varying in colour, being barred with blue, yellow, brown, or red, and all the intermediate shades: the trumpet-shaped proboscis is finely striated, and the margin crenated.

14.

S. with a round, taper, opaque, white shell, slightly wrinkled transversely; the smaller end is usually subconvoluted irregularly, sometimes only flexuous; this part is fixed; the larger part is detached frequently for half its length, and ascends in a considerable angle from the base, though rarely perpendicular: the erect part is

V v v

nearly

TUBULARIA.



nearly strait, or slightly flexuous; but always turning with the sun: aperture orbicular. Diameter at the larger end two-tenths of an inch, gradually tapering to a fine point; length four or five inches.

This species has probably been confounded with the *S. vermicularis*, from which, indeed, it might be difficult to separate it, was it not for the great difference in the animals. We have, however, observed that *S. vermicularis* is usually attached to some other body its whole length, and never reflects in the manner of this.

It is by no means common; those we procured alive were at *Torcrofs* in *Devonshire*, where an opportunity offered of examining the animal, by putting the shells into a glass of sea water as soon as they were dredged up: these were affixed to old bivalves, the finest specimens were on that of the *Mastra lutraria*: two had their base entwined, and the larger ends attached longitudinally, ascending in an angle of thirty degrees.

The animal is an *Amphitrite*, with between fifty and sixty annulations; the head long, white, barred with pink and green; on each side a loose, scalloped, transparent membrane, capable of contraction and expansion, and frequently surrounding the under part: *tentacula* two, beautifully feathered, each originating from a single stalk, placed near to each other on the fore part of the head: on one side of each of these stalks are long fibres,



fibres, placed in regular order; these again are furnished on each side with finer fibres. When the animal withdrew its *tentacula* it became somewhat convoluted, as the fibres closed, and turned a little spiral up the stalk: their colour pale yellow, or yellowish-white, the fibres, or *pinnæ*, annulated with pink, so as to form regular, semi-circular lines, when the plumes were spread.

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\*\*\* CONCAMERATED.

Serpula Nautiloides. *Gmel. Syst.* p. 3739?

*Turt. Lin.* iv. p. 602?

Nautilus lobatulus. *Turt. Lin.* iv. p. 307.

*Adams Microsc.* t. 14. f. 36.

*Walk. Min. Shells.* f. 71.

15.

LOBATA.

S. with a compressed, spiral, lobated shell; shape various, sometimes roundish, others oblong; above convex; with six, seven, or eight lobes: beneath flat; the interior volution only marked by one or two small elevations, and frequently not visible: colour white, or yellowish: aperture minutely small, scarce definable. Diameter barely one line.

This species has much the habit of a *Nautilus*, the interior part being divided into unequal, parallel concamerations.



We originally received it from Mr. Boys, for WALKER'S shell above quoted; have since found it adhering to the roots of *fuci*, common on the *byssus* of *Pinna ingens* on the coast of *Devonshire*, and sometimes on shells. Is found also at *Sandwich* and *Whitstable* in *Kent*, where, as well as on many of our arenaceous shores, it may be found dead amongst the finer sand.

The circumstance of its being sessile, or fixed to other bodies in a living state, forbids it claiming a place amongst the *Nautili*.



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 GEN. XXXIV.

 VERMICULUM.
 

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*Animal a TEREBELLA?*

SHELL, univalve, shape various: not attached, or adhering to other bodies.

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We have been induced to separate the *Linnæan* class of *Serpulæ*, not only from their dissimilitude in structure, but because many of them do not come under the generic character, (of being fixed to other bodies.) Those, therefore, which are independant, or not attached to other bodies, we have formed into a new genus, under the title of *Vermiculum*. These, again, might with propriety be divided into two distinct genera; those which are convoluted, or sub-convoluted, and those which are straight, and of a bottle shape: the latter of which Mr. WALKER has very significantly distinguished by the name of *Lagena*. The number of these, however, as yet discovered are inconsiderable, we shall therefore only make them into two divisions of the same genus.

The



The animals of two or three species we have examined, are not the least like any thing observed in the genus *Serpula*; when alive they rarely protrude any thing beyond the shell; but when recently dead, a fleshy bulb, without any visible *tentacula*, or feelers, makes its appearance; but hitherto we have not been able to fix any thing as definable characters.

---

\* SUB-CONVOLUTED.

1.  
INCURVATUM.

*Serpula incurvata.* Turt. *Lin.* iv. p. 609.

*Adams Microsc.* t. 14. f. 7.

*Serpula recta anfractibus tribus contiguis regulariter involutis.*

*Walk. Min. Shells.* f. 11.

The strait horn Wormshell, with three close intorted spires at the tip; the colour white, semi-transparent. From *Sandwich*, rare.

This shell is somewhat in shape like *Nautilus semilitus* of LINNÆUS; but is perfectly smooth, cylindric, and has neither *Syphon* in the aperture, nor internal concavations. Length scarce one line.

2.  
PERVIUM.

*Serpula recta umbilico pervio anfractu apicis unico involuto.*

*Walk. Min. Shells.* f. 12.

The single-spired strait horn Wormshell, with a pervious



vious *umbilicus*: the colour whitish, transparent and glossy. From *Reculver*, very rare.

This is rather smaller than the last, and differs from it in the turn of the lesser end, where it only makes one revolution, which is open or pervious.



3.

*Serpula bicornis*.

*Turt. Lin.* iv. p. 609.

BICORNE.

*Adams. Microsc.* t. 14. f. 2.

*Serpula bicornis ventricosa. Walk. Min. Shells.* f. 2.

The bellied semi-lunar Wormshell; colour white, opaque and glossy. From *Sandwich* and *Reculver*, though not common. Length one line.

We received this species from Mr. BOYS for that described by WALKER, the figure of which does not exactly express the formation of the shell, which represents only two compartments, whereas it has three; the middle one is extremely small, sometimes raised, at other times depressed: is sub-oval, compressed, and striated longitudinally on the longer side from the aperture; the other side is smooth: it contracts towards the mouth, which is very small and orbicular.



4.

*Serpula perforata. Turt. Lin.* iv. p. 609.

PERFORATUM.

*Adams. Microsc.* t. 14. f. 3.

*Serpula bicornis umbilico perforato. Walk. Min. Shells.* f. 3.

The



The semi-lunar perforated Wormshell: the colour white, opaque and glossy. From *Sandwich*, very rare.

The shell, which Mr. Boys favoured us with for that given by WALKER, was not perforated, and differed so little from the preceding, that we are inclined to believe, it is no other than a mutilated specimen of that shell.

We have found it in *Cornwall*, and sometimes with the small interior compartment worn off, which gives it the appearance of being naturally perforated.

## 5.

## INTORTUM

*Serpula subovalis intorta umbilico pervio. Walk. Min. Shells. f. 1.*

*Serpula Seminulum. Lin Syft. p. 1264?*

*Gmel. Syft. p. 3739?*

*Turt. Lin. iv. p. 602?*

*Martini Conch. i. t. 3. f. 22. a. b?*

*Gualt. t. X. f. S.*

*Serpula ovalis. Lin. Trans. v. t. 1. f. 28. 29. 30. (Adams.)*

*Turt. Lin. iv. p. 608.*

V. with a sub-oval, compressed, opaque, glossy-white shell, composed of three, and sometimes four, compartments; the interior ones varying in shape and size; some are longer in proportion to their breadth than others: these have usually only three well defined compartments: but the larger and more sub-orbicular shaped variety



variety has sometimes five, one of which is extremely small and linear: these sub-volutions are defined by a depression, and are wrinkled transversely: aperture compressed, semi-lunar. Diameter one tenth of an inch.

This is so variable in its formation, that without great attention, it might be formed into several species.

We have found it plentiful on all the sandy shores we have examined; the finest and largest on the coasts of *Devonshire* and *Cornwall*. It frequently happens, that the interior part is worn, and becomes pervious; in which state Mr. WALKER has figured it; for we cannot consider it any other than his shell; and we are the more confirmed in this opinion, by the specimens favoured us by Mr. BOYS from the coast of *Sandwich* for it, none of which were perforated.

If this is the *S. Seminulum* of GMELIN, of which there is very little doubt, it is found in the *Adriatic* and *Red-Seas*; and sometimes in a fossil state.



6.

*Serpula subrotunda dorso elevato. Walk. Min. Shells. f. 4. SUBROTUNDUM.*

V. with a sub-orbicular, sub-compressed, smooth, glossy, opaque, white shell; composed of three compartments, the middle one elevated above the others on the upper side; not visible beneath: aperture small,

X x x

angulated;



angulated; margin in live shells yellow. Diameter about half a line.

This species is not half so common as the last; but is found in sand on several of our shores.

7.

OBLONGUM.

Tab. 14. f. 9.

V. with an oblong, oval, opaque, glossy, white shell, somewhat compressed; on one side a single longitudinal future, that seems to divide the shell into two parts: on the other side, the middle compartment is surrounded by a faint depression, that separates it from the exterior one, and is more elevated; aperture a little produced, oval; margin yellow. Length not half a line.

In sand from *Salcomb* bay *Devonshire*: rare.

The five last described species have somewhat the habit of *Nautili*, though not regularly concamerated, or divided into chambers: they are contracted at the angulated turns, which form the sub-volutions.

---

**\*\* BOTTLE-SHAPED, NOT CONVOLUTED.**

8.

LACTEUM.

Serpula lactea.

*Turt. Lin.* iv. p. 609.*Adams Microsc.* t. 14. f. 4.Serpula tenuis ovalis lævis. *Walk. Min. Shells.* f. 5.

The



The thin, smooth, egg-shaped Worm-shell: the colour pellucid, with milky veins. From *Sandwich*, not common.

We have found this species on the coast of *Devonshire*. It is not compleatly egg-shaped, as Mr. WALKER describes it, but is somewhat compressed; the white lines mark the compartments, which appear to be four: the border round the shell is also opaque white: aperture extremely small. Length half a line.



9.

*Serpula* (*Lagena*) *friata fulcata rotunda.* *Walk. Min. STRIATUM.*

*Shells. f. 6.*

*Serpula Lagena.* *Turt. Lin. iv. p. 609.*

*Adams Microsc. t. 14. f. 5.*

V. with a pellucid, glossy, white, sub-oval shell, with a slender, produced mouth; finely striated longitudinally, very conspicuous by being more opaque than the rest of the shell: shape like a *Florence* flask: aperture small, orbicular. Length not half a line.

This elegant species is mentioned by Mr. WALKER to be rare at *Sandwich*, *Reculver*, and *Shepey*. We have received it from Mr. BOYS, and have found it in fine sand on the south coast of *Devonshire*.



10.

*Serpula* (*Lagena*) *laevis globosa.* *Walk. Min. Shells. f. 8. GLOBOSUM.*

The smooth round Flask Wormshell: the colour white and transparent. From *Sandwich*, very rare.

X x x 2

This



This seems to differ from the last in being destitute of striæ, and in the mouth not being lengthened, but terminating in a small round aperture; and is rather less.

11.  
LÆVE.

Serpula (Lagena) lævis ovalis. *Walk. Min. Shell. f. 9.*

The smooth oval Flask Wormshell: the colour bluish-white, very transparent like glass. From *Sandwich*, very rare.

This differs from the last in being more oblong, and in having a produced, cylindric mouth, like the *striata*.

12.  
MARGINATUM.

Serpula (Lagena) marginata. *Walk. Min. Shells. f. 7.*

The bordered Flask Wormshell: the colour white, transparent and glossy. From *Reculver*, very rare.

This is in shape like the *globosum*, rather less, a little compressed, and distinguished by an elevated ridge, or margin, that surrounds the shell longitudinally.

We have found it in sand on the coast of *Devon*: but never with the mouth so much protruded as Mr. WALKER's figure represents.

13.  
RETORTUM.

Serpula (Retorta.) *Turt. Lin. iv. p. 609.*

*Adams Microsc. t. 14. f. 6.*

Serpula



*Serpula (Retorta) rotunda marginata cervice curvatum exerto.*  
*Walk. Min. Shells. f. 10.*

The marginated Retort Wormshell; the colour white and opaque. From *Sandwich* not common.

This species differs from the last in having a produced, sub-cylindric, recurved mouth; the body is more orbicular, and the margin that surrounds the shell more strongly defined. The specimen we received from Mr. Boys is a little compressed, and has a small depression, or *sub-umbilicus*, on each side near the centre. Diameter not half a line.



14.

V. with a bottle-shaped, smooth shell, furnished with PERLUCIDUM. fix, equidistant, longitudinal ribs, and a small knob at Tab. 14. f. 3. the base; neck very long, sub-cylindric: aperture extremely small: colour white, transparent, and glossy.

Length not one tenth of an inch. Found at *Seafalter*.



15.

V. with an Urn-shaped, smooth, glossy, semi-transparent URNÆ. white shell; at the base a slender appendage, or Tab. 14. f. 1. knob: aperture produced by a conic neck.

Length scarce one line. Found in sand from *Shepey* island.

V. with



SQUAMOSUM.

Tab. 14. f. 2.

V. with a sub-globose shell, marked with undulated striæ, like the scales on a fish: aperture a little produced.

A minute species from *Seafalter*.

For the three preceding species, we are indebted to Mr. BOYS, who, with his usual liberality, favoured us with excellent drawings, with an assurance, that he had seen the shells from which they were taken.

GEN.



## GEN. XXXV.

## TEREDO.

*Animal usually described as a TEREbella.\**

SHELL cylindric, taper, flexuous, lodged in woody substances; with two testaceous, hemispherical valves, anteriorly truncated, covering the head of the animal: and two others, of a lanceolate shape, near the extremity of the tail.

1.  
Teredo navalis. *Lin. Syst.* p. 1267.—*Gmel. Syst.* p. 3747. 1. NAVALIS.

*Martini Conch.* t. 1. f. 11.

*Planc. Conch.* 17. No. 2.

*Sellius Hist. Natur. Teredinis.* 1733.

*Pult. Cat. Dorset.* p. 53.

*Phil. Trans.* 1741. No. 455. t. 2. (*Baster.*

*Br. Zool.* No. 160.

*Turt. Lin.* iv. p. 609.

Serpula Teredo. *Da Costa.* p. 21.

T. with

\* The animal certainly has none of the characters of a *Terebella*. It has neither *tentacula*, *branchiæ*, tubercles, nor *fasciculi*; and is distinct from any testaceous animal we are acquainted with.



T. with a thin, brittle, flexuous shell, of a whitish colour, tapering to the extremity: aperture orbicular; inside smooth, pervious: at the smaller end the shell becomes thick and strong, and is furnished within with plates or *laminæ*, which contract that part very considerably, and leave a very small opening: the anterior valves, attached to the head of the animal, are of a hemispheric form, one half the front projecting in a sharp angle, and somewhat pointed; thin and brittle, finely, and regularly striated longitudinally on the front angle, which terminates in a regular line backward, where the striæ conform to the angular shape of the valve, and run transversely across the middle, or truncated part; this part is covered with a light-brown *epidermis*; the hinder part, or that which is attached to the animal, is white and smooth.

The inside of each valve is white, furnished with a long, flat, curved tooth, projecting inwards under the hinge, as in most the *Pholades*, and a short, lateral tooth at the extremity of the hinge, corresponding in each valve: the margin, opposite the hinge, runs to an acute angle, at the point of which, in each valve, is a small knob, which comes in contact when the valves are brought together; and as this is the only bearing point besides the hinge, it may readily be conceived the fides are extremely open.

Near the extremity of the tail of the animal, are fixed

two



two lanceolate plates, or valves, one on each side; a little concave on the inside, and rounded at the end: the office of which is to close the extremity of the tube at the thickened part. These seem to be properly the shells of the animal, being attached to it. The tubular, testaceous case, or sheath, which lines the hole made by this animal in wood, though necessary to its existence, appears only to be formed as an apartment, in which it may move with ease and security; for it is observable, that no two tubes ever touch each other, although the *lamina* of wood between them is frequently not thicker than paper. The tube is seldom so long as the animal, as the interior part of the perforation is usually not lined with it for two inches or more: the smaller end is always even with the surface of the timber perforated, but so small as not easily to be discovered; but sufficient to admit the surrounding element, and which the animal can regulate by the posterior valves.

It has been erroneously imagined, that the animal perforates wood by means of its anterior valves; but there is no reason for ascribing such a property, because their shape has been likened to an auger, when we find all the *Pholas*, the *Mytilus rugosus*, the *Donax Irus*, and many others perforate not only wood, but even the hardest lime stone, without the assistance of their shells, a part impossible to effect it.

It is observable the *Teredo* bores across the grain of the

Y y y

wood



wood as seldom as possible; for after it has penetrated a little way, it turns, and continues with the grain, tolerably straight, until it meets with another shell, or perhaps a knot, which produces a flexure: its course then depends on the nature of the obstruction, if considerable, it makes a short turn back in form of a *siphon*, rather than continue any distance across the grain.

We had an opportunity of examining a great number of these shells in the *Dock-Yard* of *Plymouth*; where every means have been tried to prevent the destructive quality of these pernicious animals, which are now become naturalized to the climate, and have increased considerably, though supposed to be of oriental origin.

The piles we examined had been recently taken up to be replaced with new; these we were informed, had not been under water above four or five years, and though perfectly sound and solid oak, were greatly perforated.\*

It must be presumed, that the tube is lengthened as the animal's growth requires; and that it can extend the whole length of the perforation without quitting the tail; but that it cannot recede far, by reason of the increase of the anterior valves affixed to the head, and the taper shape

\* The method now adopted to preserve the timbers necessarily used about the docks, is to cover that part which is continually under water, with short, broad-headed nails, which in salt water, soon cover every part with a strong coating of rust, impenetrable to these animals: and we are assured this has been found to succeed better than sheathing with copper.



shape of the tube. This part is rarely above three-quarters of an inch in diameter at the larger end, and a foot in length, in our climate; but exceeds that in the more southern parts, from whence it was brought into our harbours to the destruction of our ships, as LINNÆUS justly observes, *calamitas navium*.

This shell has been usually placed amongst the univalves, but certainly without reason, for undoubtedly, it is as compleat a multivalve, as any other of that class, and ought to be either placed with the *Pholas*, or between that and the *Balanus*, for it has no affinity either to the *Serpula* or *Dentalium*.

GMELIN in a marginal note expresses himself thus, "*Teredines intra vegetabilia habitantes, quæ destruunt, vitæ genere, victu, et habitatione, navalis certe, ipsa valvarum vermi adhaerentium fabrica, propius ad pholades accedunt, quam ad serpulas.*"

We have, however, thought proper to leave it where LINNÆUS last placed it, for the consideration of those who may write more largely upon this branch of natural history.

It might be asked by those of less philosophic minds, why an animal should be formed wholly for destruction.

The answer is, that the greater apparent destruction, assigned to certain beings, is but the necessary link in



the great chain of nature: all, more or less, are endowed with the same inclinations, even man, intellectual man, is the most destructive of all animals.

The powers with which some of the seemingly most contemptible beings are endowed, to promote the speedy destruction of useless matter, cannot perhaps be better exemplified, than by Mr. SMEATHMAN'S curious account of the *Termes*, or what has been commonly called *White-ant*, given in the *Philosophical Transactions* for 1781, to which we refer our readers.

That the *Teredines*, as well as the *Pholades*, and many other aquatic animals were created, by the Father of the Universe, for equally beneficent purposes in that element cannot be disputed; for though they may seem to impede, and even destroy the operations of man in some degree, yet, they are of such importance in the great scale of nature, that, as it has been observed, it would not be difficult to prove, we should feel the want of one or two species of larger quadrupeds much less, than one or two species of these despicable-looking animals.

Were it not for these, whose office it is to perfect what nature has already begun on land, either by the means of insects, or tornadoes, which by the aid of rapid torrents would fill the tropical rivers with timber, and not only choke them up, but even endanger the navigation of the neighbouring seas, and perhaps the distant ocean;  
for



for without such powerful agents of dissolution, wisely created, such trees might under water endure for ages.\* Whereas, nothing can more plainly demonstrate the power of an all-wise Ruler of the Universe, than the works assigned to these little, and seemingly despicable, beings, whose business is to hasten the total destruction of all useless matter, and proves them a necessary, connecting link in great nature's chain, so beautifully described by STILLINGFLEET.

\* In the *Leverian* Museum is an oak stake, which is said to be one of those driven into the river *Thames* on the invasion of JULIUS CÆSAR, eighteen hundred years since. Timber is frequently taken out of bogs, which have probably lain since the deluge, and perfectly sound.



## GEN. XXXVI.

## SABELLA.

*Animal various, AMPHITRITE, TEREBEL-  
LA, SPIO, and NEREIS?*

THE animal inhabiting some of the *Linnæan Sabellæ* has, by later authors, been considered as an *Amphitrite*; and to this new genus the *Sabella Penicillus* and *granulata* have been removed.

Before we enter upon the descriptions of the several species of *Sabella* indigenous to the *British* coasts, it may not be improper to remark, that in placing them amongst shells, we have deviated from our own opinion, and have followed the system of LINNÆUS, and other later writers, in continuing this genus amongst the *Vermes Testacea*.

The tubes in which the animals of this class are enclosed, are all, more or less, composed of extraneous matter agglutinated together, such as sand, gravel, and broken



broken shells, of a finer or coarser texture, according to the nature of the animal inhabitant; and not prepared by a testaceous secretion from the body of the animal, forming a compact, solid substance, the true character of a shell.

Amongst the *Sabellæ* of LINNÆUS many *larvæ* of sub-aquatic flies are placed, several of which are to be found in our rivers and stagnant waters: but these, deriving their origin from winged insects, have no claim of affinity to a *Sabella*, much less to a place in Conchology.

We are not aware that any true *Sabella* is found in fresh-water; and certainly no winged insect has yet been discovered, to perform its change from the *larva* to the perfect fly, in salt-water.

GMELIN has enumerated a great many *Sabellæ*, which inhabit fresh-water, principally on the authority of SCHROETER; many of which are varieties only of the same imperfect insect, the *larva* of *Ephemera vulgata*, some that of *Phryganea*, and perhaps other *Neuropterous* insects.

The tubes, or cases, in which these *larvæ* are concealed, are formed of whatever extraneous matter is near, and which is increased as its growth requires: this accounts for the many elegant varieties of such tubes.

Some



Some are composed wholly of small shells of various kinds; others of fragments of shells mixed with sand, bits of stick, stalks or fibres of plants; and it is remarkable, that some species attach pieces of stick longitudinally, while others bite off short pieces and place them transverse, like basket-work, some placing them triangular, others quadrangular, or lozenge-shaped. But the most beautiful variety, is that found in waters abounding with *Helix nautilus*, with which we have seen these cases compleatly coated in a regular and most elegant manner, with their apertures outwards, and some of the animals yet alive. Another variety, coated with fine sand, and minute bits of shining *mica*, found in *Cornwall*, and other streams running over micaceous granite, is deserving notice: but we must not enter further on a subject which more properly belongs to Entomology.

Why a part of the *Linnæan Sabellæ* should be removed into the *Mollusca* class of *Vermes*, and others left amongst the *Testacea* is difficult to determine; for those whose inhabitants are *Nereis*, have no more claim to a place amongst shells, than such as are inhabited by an *Amphitrite*, or *Terebella*; and might certainly, with as much propriety, be transferred to their proper animal class.

That the *Sabella* genus should be wholly expunged, and the several animals placed in their respective *genera* amongst the *Mollusca*, there can be no doubt; for those, whose cases are made up of agglutinated fragments



ments of shells the *exuviae* of other animals, are as little deserving a place amongst *Testacea*, as those formed wholly of sand, or composed of both: such are equally extraneous substances, foreign to the animals, and are only attached by a *mucus*, or glutinous secretion, which forms the internal coating, and is the only part of such tubes really belonging to the animals; and which, in any species cannot be termed more than coriaceous, but more commonly membranaceous, of a thin, flimsy, flexible substance when moist, but extremely fragile when dry.

It may be asked why, as we do not consider the *Sabella* in the least connected with shells, nor even deserving a separate place in the System of Nature, we have deviated from our hypothesis. To this we should reply, that we have only followed the example of greater naturalists, at the same time submitting our observations to those, who may hereafter take up the subject on a more enlarged scale.

We are aware it will be said, that shells are only the coverings of animals; granted; but they are really testaceous, wholly secreted, and prepared by the animals, and as much a part of them, as the covering of a tortoise, which is inseparably fixed. We admit, however, that it is an imperfect class in the *Systema Naturæ*, and was originally rejected by LINNÆUS as such: but as it was impossible to bring their several animals into any



regular system, from the very little knowledge hitherto obtained of them; and as the more durable parts of such animals were so easily preserved, and so extremely coveted from their attractive beauty, it became necessary to throw them into some systematic arrangement, in order that the species might be ascertained, and names given them, for the more ready communication of naturalists on the subject. Indeed, could we ascertain the several species of animals inhabiting shells, we are inclined to believe, they would still continue to be divided and subdivided by the form and structure of their coverings, as much as the *Tortoise*, *Echinus*, or the more crustaceous animal the *Cancer*, whose bones are external. It must, however, be admitted, that the animal inhabitants of shells may, as far as they can be ascertained, be an essential aid in discriminating species.

The animals inhabiting shells, as far as we yet know, are confined to a very few *genera*, as may be seen in our generic description of such; some of which are found in a molluscous state, and are properly separated. On the contrary, as the tubes, or cases, usually called *fabellæ*, are of that fragile, imperfect, and perishable nature without being readily definable; a covering from agglutinated pebbles, to a thin transparent film not preservable; we must systematize the animals and not their occasional coverings, (from which many of them retire at pleasure, and all independent of them) and endeavour to make such subservient to specific purposes only.

Let



Let us ask, in return, if it is not inconsistent with a systematic arrangement, to describe the animal in one place as a *Vermes Mollusca* inhabiting a tube, and in another place as a *Vermes Testacea*, or *Sabella*, inhabited by an *Amphitrite*, or a *Terebella*? Such, however, is the case in some modern systems,\* and must be where the animal is capable of living independent of its case or covering, and may sometimes be found destitute of it in perfect vigour.

Surely, it would have been a much more natural arrangement, to have placed the *Echinus* in the order *Testacea*, than the *Sabella*: indeed, some authors have considered these as shells; but in the *Linnæan* system are placed amongst the molluscous animals, though covered with a shell.

We shall not, however, enter more largely on this subject in a monographical work; it is for those to consider who write a general system, whether the *Sabella* should not be expunged from the book of nature as a substantive, and only described with their several animals, with a view to specific distinctions: and by so doing, all the cases of *larvæ* belonging to winged insects, which have been most unaccountably intruded upon the *Testacea* class, would naturally find their way to those

Z z z 2

perfect

\* GMELIN has described *Amphitrite Auricoma* in its proper place as a molluscous animal, and its case amongst the *Testacea*, under the title of *Sabella Belgica*.



perfect flies to which they properly belong, and consolidate their several histories, which are now broken and divided.

Having said thus much, we shall, without further apology, proceed to the description of the several *Sabellæ* which have occurred on our shores, together with such of their animals as have come within our researches.

1.  
ALVEOLATA.

*Sabella alveolata.*

*Lin. Syst.* p. 1268.

*Gmel. Syst.* p. 3749. 3.

*Br. Zool.* t. 92. f. 162.

*Turt. Lin.* iv. p. 610.

*Pult. Cat. Dorset.* p. 53.

*Tubularia arenosa Anglica. Ellis Coral.* p. 90. t. 36.

S. with numerous tubes placed parallel to each other, closely joined, but not interfering; composed of fine sand and comminuted shells, cemented together in an aggregate mass: the aperture of each tube is considerably expanded, and has somewhat the appearance of a honeycomb: the length of some of these tubes nearly three inches.

This gregarious species is not uncommon on many of our fine sandy shores, covering the sunken rocks for a considerable space between high and low water-mark.

Mr.



Mr. PENNANT mentions it on the coast of *Anglesea*, *Caernarvonshire*, and *Yarmouth*: at this last place ELLIS also noticed it about low water-mark.

We have observed it in prodigious masses on the coast of *Caermarthenshire*, between *Laugharne* and *Tenby*; and also a little to the west of *Teignmouth* in *Devonshire*.

The animal is a *Terebella*, furnished with three series of pale, glossy bristles, set in an oval form on the head; the outer series reflect; the interior, which immediately surround the mouth, incline inwards: the body, like the rest of its congeners is provided with many tufts of bristles on each side, but the three uppermost are much more conspicuous than the rest.

Mr. ELLIS has given a very good figure of the animal magnified, and a very copious description; to which we refer the curious reader.



Sabella Penicillus.

*Lin. Syst.* p. 1269.

2.

PENICILLUS.

*Martini Conch.* i. t. 4. f. 32.

*Pallas Misc. Zool.* t. 10. f. 1.

Corallina Tubularia Melitenfis. *Ellis Coral.* p. 92. t. 34.

Amphitrite Ventilabrum. *Gmel. Syst.* p. 3111.

*Turt. Lin.* iv. p. 82.

Scolopendra.

*Baster Op. Subs.* i. t. 9. f. 1. A.B.

S. with



S. with a long, slender tube, gradually tapering to the lower extremity, which is small, and flexuous; the upper part is nearly strait; the interior part is formed of a tough, coriaceous, sub-pellucid substance, smooth within; the external covering is wholly extraneous composed of the finest particles of sand, or earthy matter, agglutinated together, forming an even, and somewhat smooth surface, of a dull brown colour, sometimes marked with a few faint wrinkles. Diameter at the larger, or open end, a quarter of an inch; length six or seven inches.

This species, not hitherto noticed as *British*, is found on several parts of our coasts, but does not grow to the size met with in the *Mediterranean*. We first noticed it on the shore at *Teignmouth*, and afterwards dredged up several, with their animals, at *Torcross* in *Devonshire*, adhering to *Ascidia Mentula*, and interwoven with *abietina* and other *Sertularia*: have also found it on the north shore, near *Poole*, clustered, and single.

The beauty of the animal inhabitant (which is an *Amphitrite*) is not to be seen in such as are brought to *England* in spirits: we must examine such in their natural element, to form a perfect idea of their extreme elegance. Those we took alive were immediately put in a glass of sea water, and by such means were kept alive two or three days, giving a full opportunity of examining them in various states. In this situation the plumose  
tentacula



*tentacula* did not appear divided, and irregular, or one smaller than the other, as described, and figured by ELLIS, and afterwards by MARTINI, who has evidently copied from the former; but are thrown out and expanded so as to form a regular circle; the feathers, or ciliated fibres that compose the *tentacula*, are longer on the upper part than beneath. It is probable, an unnatural division of these fibres, in a preserved specimen from *Malta*, had misled the accurate eye of so great a naturalist, for if Mr. ELLIS had ever had an opportunity of examining the living animal, he would have given a much more correct and elegant figure of the beautiful plumose *tentacula*.

To Mr. HENRY BOYS of *Sandwich*, we are not only indebted for the knowledge of this *Sabella* being found at *Whitstable* in *Kent*, and not uncommon about *South-sea Castle* near *Portsmouth*, on stones at low water-mark, but for several well executed drawings, accompanied by a very correct description.

The body is flattened, long, with numerous joints and *fasciculi*; a reflected, scalloped membrane round the neck: *tentacula* two, furnished with about twenty-four long fibres, or feathers, ciliated on both sides;\* these are  
of

\* Mr. BOYS observed twenty-four in one, and twenty-one in the other. The *tentacula* are capable of great contraction; in which state, as well alive as in those preserved in spirits, the fibres appear feathered only on one side, by reason of their closing; in this state they are presented by ELLIS.



of a pale colour, spotted with red, which, when spread, appear disposed in circles.

A *Sabella* much resembling the *Penicillus*, and the animal an *Amphitrite*, of very similar make and colour, but differing somewhat in the formation of the *tentacula*, occurred to us on the coast of *Devonshire*; whether it is a mere variety, or distinct, we are not sufficiently authorised to determine, having only seen one specimen, and that in a languid state when examined.

In this the fibres of the *tentacula* are jointed, or knotted, and besides the ciliated sides as in the other; they were verticillated at the joints, like those plants of the *Cryptogamia* class called *Equisetum* or *Horse-tail*: these joints are at regular distances.

The tube was not near so long as usual in the *Penicillus* and was partly composed of coarser materials, particularly broken shells: it had been attached to some other body near the smaller extremity.

## 3.

## GRANULATA.

*Sabella granulata*. *Lin. Syst.* p. 1268.

*Martini Conch.* i. t. iv. f. 27. & 26?

*Pallas Misc. Zool.* t. 9. f. 3. & 2?

*Pult. Cat. Dorset.* p. 53.

*Sabella tubiformis*. *Br. Zool.* t. 92. f. 163.

*Nereis conchilega*. *Id.* No. 34.

*Sabella*



- Sabella Belgica.* Gmel. Syst. p. 3749.  
 Turt. Lin. iv. p. 611.  
*Amphitrite auricoma.* Gmel. Syst. p. 3111.  
 Turt. Lin. iv. p. 82.  
 Muller Zool. Dan. i. p. 87. t. 26. f. 1. 6.  
*Terebella conchilega.* Turt. Lin. iv. p. 84.

S. composed of fine sand, agglutinated together into a thin, brittle tube, without any membranaceous internal coating. Length two inches or more: diameter at the larger end three-eighths of an inch, gradually tapering to half that size at the smaller end.

This is not uncommon upon many of our fine sandy shores.

Great confusion has arisen with respect to the synonyms of this *Sabella*: GMELIN has given it first under the article *Amphitrite*, quoting MARTINI, tab. 4. f. 26. 27. and afterwards as a *Sabella*, with reference only to the 27 fig. of that author.

Doctor TURTON has given it an additional place in the genus *Terebella*, with reference to the *Sabella tubiformis* of the *British Zoology*; and Mr. PENNANT has given the animal as *Nereis conchilega*.

The animal is certainly the *Amphitrite auricoma* as described by GMELIN, and is generally known by its two rigid, glossy, gold-coloured, bristly *tentacula*.



## CHRYSDON.

Sabella Chryfodon. *Lin. Syst.* p. 1269 ?*Gmel. Syst.* p. 3749 ?*Turt. Lin.* iv. p. 610 ?*Martini Conch.* i. t. 4. f. 29. 30.*Pallas Misc. Zool.* t. 9. f. 14. 15. 16.*Baster Opusc. Sub.* i. t. 9. f. 4.

S. with a cylindric tube, of nearly the same size throughout, and about as large as a goose quill, composed of sand, fragments of shells, or small, flat pieces of stone, closely cemented together on a tubular membrane, which is smooth on the inside: the upper part is furnished with numerous, long fibres, of the same texture, projecting in a sub-funnel shape, but generally somewhat compressed sideways.

Is sometimes constructed wholly of sand: others are formed of large fragments of slate, and not unfrequently mixed with whole shells, such as *Nerita littoralis*.

These are not uncommon in most of our inlets and bays, but rarely on the more exposed shores: the largest we remember having seen, was in the inlet that runs up to *Kingsbridge* in *Devonshire*, where it is very common a foot in length, and composed of very coarse materials: but this is a circumstance, entirely depending on the nature of the shore the animal inhabits, and which does not appear to be very choice of situation, like the animals of the two preceding, who can only inhabit such places as will afford them fine sand.

The



The *Chrysodon* is usually buried in a perpendicular direction; the funnel, or mouth of the case, is always about an inch above the surface, and is readily distinguished by its branched fibres: it is generally strait, except where larger stones intervene, in which case it is flexuous. Found most times congregated between high and low water-mark.

This, and the *Sabella conchilega*, have most probably been confounded; and, indeed, it is difficult to determine which of these is the *Chrysodon* of GMELIN.

It is sometimes wholly composed of broken shells, in which state, it may be mistaken for that species; but is never found creeping, or laterally attached.

The animal is a *Terebella* of a slender form, but considerably largest at the anterior end: joints about forty, with as many *fasciculi* and *branchiæ* on each side, the first nine or ten much larger, and nearer together than those on the middle of the body; round the mouth are numerous, long, filiform *tentacula*, like the body, of a pale flesh-colour; behind the head are short, branched feelers. Length sometimes four or five inches.



*Sabella conchilega.* Pult. Cat. Dorset. p. 54.

*Terebella conchilega.* Gmel. Syst. p. 3113.

Turt. Lin. iv. p. 84.

*Sabella rudis.*

Br. Zool. No. 161. t. 26. lower figure.

A a a a 2

S. with

5.

CONCHILEGA.



S. with a thin, fragile tube, composed of large fragments of shells, and little or no sand, cemented sparingly on a thin membrane, usually attached its whole length in a flexuous or serpentine form on old bivalves. Mr. PENNANT, and Doctor PULTENEY both mention this circumstance on the *Dorsetshire* coast: it is not, however, confined to that part, but is common throughout the western shores, and elsewhere.

Is rarely found on stones; and what is possibly a variety is sometimes seen creeping amongst the branches of *Sertularia abietina*: if this last is distinct, we dare not venture to give it as such, never having as yet had an opportunity of examining the animal.

The animal of *S. conchilega* is a *Terebella*, of a dull orange colour, with numerous, pellucid tubercles, and *branchiæ* on each side: *tentacula* round the mouth numerous, slender, filiform, and extremely long; retractile, but usually extended two or three inches, or more, and exceeds the length of the body; their colour is orange-yellow, prettily spotted with red; and when the animal is in vigour, they are in continual motion, thrown about in all directions: behind the head are short, branched feelers, of a deeper orange colour.

Doctor TURTON has erroneously made this animal the inhabitant of *Sabella tubiformis*.

We



We have seen this *Sabella* as large as a goose quill, complicated, entwined, and interwoven together; and not less than four or five inches in length. Is readily distinguished from *S. Chrysodon* by its habits, and by the want of the funnel-shaped, fibrous mouth; as well as by its component parts being more unconnectedly put together.

The animal, too, differs essentially from that of the other, especially in the more numerous joints of the body, which are not only swollen, or knotted, but the tubercles are remarkably prominent; and a much greater disproportion between the size of the anterior part, taking in ten or eleven joints, and the rest of the body; besides, the anterior part of this appears, through a lens, to be punctured or cancellated.



*Sabella lumbricalis.* Gmel. Syst. p. 3752?

Turt. Lin. iv. p. 613?

Fab. Faun. Groen. p. 374. No. 369?

Pult. Cat. Dorset. p. 53.

6.  
LUMBRICALIS.

*S.* with a strong tube, composed of coarse sand, and sometimes mixed with fragments of shells, firmly cemented together in a rough manner, upon stones, shells, and other bodies, in a serpentine form, and frequently entwined with *Serpula triquetra* and *vermicularis*; to which it is very little inferior in strength, being by far the strongest of all the *Sabella* tribe. Length two or three inches; diameter one quarter of an inch. Common on all our shores.

The



The animal is a *Terebella*, with the proboscis a little spreading, and fringed round the margin with bristles: the mouth beset with four long *aculei*, and intermediate short ones: behind the ciliated margin of the proboscis is a scalloped ruff; and, on the back of the head, are numerous capillary *tentacula*, of a red colour, like the body, these are curled up when the animal is dead.

Discharges a beautiful purple dye.

We have followed Doctor PULTENEY in the prefixed references, though with doubt, as the tube is far from being fragile, and the animal appears to be destitute of the spines on the back; such at least never occurred to us, although the *fasciculi* and *branchiæ* are always conspicuous.

7.  
CIRRATA.

*Terebella cirrata*. Gmel. *Syst.* p.3112.—*Turt. Lin.* iv. p.83.

S. with a thick, fragile tube, a little tapering, composed of sand, mixed with clay, slightly agglutinated together; soft when moist, and crumbly when dry. Length six or seven inches; diameter half an inch, or more; of the aperture a quarter.

This is gregarious, but not attached, standing upright in a muddy bottom, between high and low water-mark, with about an inch above the surface: is so extremely soft, that it is difficult to obtain more than two or three inches of the tube perfect.

We



We have never as yet observed this, but in one branch of the inlet that runs up to *Kingsbridge*. It is the tube of *Terebella cirrata*, and as it has not, we believe, been described as *English*, and possessing as much claim to a place in the *Sabella* genus as many others, could not be omitted.

The animal is furnished with two series of *tentacula* or feelers, those on the upper lip, or round the mouth, are extremely numerous, long, filiform, and of a pale colour; these usually contract into curls: the others, situated behind the head, are also numerous, short, striae, branched, and of a reddish flesh-colour: the body, when extended, is nearly a foot in length; the annulations, about ninety, furnished, as usual, with *fasciculi* and *branchiæ*; the tubercles very prominent, but the joints not tumid as in the animal of *S. conchilega*: colour pale, inclining to purplish-brown on the upper part near the head: when bruised discharges a red liquor.

When drawn from its case, it becomes considerably larger in the anterior part of the body, than the bore of the tube, but tapers greatly towards the tail.

This class of amorphous animals will, in all probability, ever remain in great obscurity; the great similitude of many, their variable forms, and different appearances in the living, and the dead states, especially when preserved in spirits, will always occasion great difficulty in discrimination.

The



The animals of *S. Chrysodon*, *conchilega*, and *cirrata*, approach each other so nearly, about the hind, or anterior part, that actual comparison is absolutely requisite to distinguish them; the bodies, however, somewhat differ; but the number of joints is not wholly to be depended on in some species: the cases or tubes, as well as the habits of the animals, are essential auxiliaries in this class of animated nature.

8.

## ARENARIA.

S. with an extremely fragile, cylindric tube, composed of pure sand, slightly cemented together without any internal membrane, like *S. granulata*, but is never so large, and is equal in size at both ends.

This is very common on the *Dorsetshire* coast, especially at *Weymouth* and *Portland*; and are driven up in such abundance at *Studland*, that the beach is covered with them. These are usually from one to two inches in length, and about the size of a raven's quill; but are probably only fragments, or that part of the tube the animal forms above the sand, which is continually destroyed by every little increased agitation of the sea, and as frequently replaced.

The animal unknown.

9.

## SUBCYLINDRICA

S. with a long, sub-cylindric, slender, fragile tube, composed of fine sand, and minute bits of broken shells, cement-



cemented together on a fine membrane, adhering by their flat sides.

This species is not uncommon in sand from *Salcomb* bar, above three inches in length, but more commonly broken into pieces of one or two inches; never more than one tenth of an inch in diameter, and nearly the same size throughout.

Animal unknown.



10.

S. with a long, slender tube, gradually tapering to the lower end to half the size of the upper part; composed of very fine fragments of shells, and minute flat bits of stones, agglutinated together at their edges, and standing oblique towards the larger end, lying on each other in an imbricated manner. Length three or four inches; size double that of a hog's bristle.

Taken up with sand from the bar off *Salcomb*, and some parts of the bay.

A variety is composed of fine sand, in which case the imbricated structure is not observable: some have a lateral branch near the smaller end; possibly another in a younger state attached.

Animal unknown.

B b b b

S. with



11.  
CURTA.

S. with a small, short tube, composed of sand and minute bits of flat stones, agglutinated to a tough membrane; sometimes formed wholly of the finest sand, depending entirely on the soil it inhabits: the case is a little tapering to the lower end, by which it is fixed, and which is generally, for a quarter of an inch, destitute of any covering, but a flexible membrane, by which it adheres to the shingle under the surface, between high and low water-mark, and stands about a quarter of an inch above. Length scarce an inch; size of a crow quill.

This *Sabella* is gregarious, covering the whole surface of the shore in the inlet near *Kingsbridge*; appearing like bits of straw covered with mud, and as close and numerous as stubble in a field.

Animal a *Terebella*, small, of a pale yellowish-green colour; proboscis pointed, with a few upright, filiform, green *tentacula*, and numerous, slender, ciliated feelers, of a pale colour; these are much longer, and more slender than the others, and are in constant motion, but both are quickly protruded and contracted.

When the animal was immersed in spirits the *tentacula* instantly contracted, and were totally obscured. Being divested of its case, a radiated tuft was perceived on each side the head: the annulations of the body about sixteen, with as many *fasciculi*, and short peduncles on each side.

S. with



S. with a short, broad, and extremely flat tube, composed of large pieces, or fragments, of flat bivalve shells, chiefly of the *Pecten* genus; these are laid without order, but sometimes cover each other at the edges, and invariably placed with the concave side inwards, which leaves a narrow perforation.

The length of those we procured was about an inch and a half, formed of five or six fragments of shells on each side, finely agglutinated together; these pieces are in general three-eighths of an inch broad, and form a most singular structure. Inhabits the deep at *Torcross* in *Devonshire*.

The animal inhabitant has hitherto eluded our researches.

ADDENDA.



## ADDENDA.



TO render this work as compleat as possible, it became necessary to give a few supplementary pages, in order that those species, which had been discovered since the printing of the *genera* to which they belong, might be described: this will also give an opportunity of noting any recent occurrence, or of adding any additional reference to such as are already described, especially those of the *British Shells*, which, being a periodical work, could only be referred to as the numbers came out.

The additions here given are systematically arranged, and where such shells have been before described, a reference to the page is added.



## MULTIVALVE.



### BALANUS.



STRIATUS.  
p. 14.

This shell, though generally considered as a *Multi-valve*, and as such placed with the *Linnæan Lepas*, has certainly



certainly no claim to either; but is more allied to the *parasitical Mytili*. It is always sessile, irregular in growth, bivalve, inequivalve; lower, or fixed valve concave; upper valve, or *operculum*, smaller, flat: hinge indistinct, no apparent teeth.

With these characters, it should be removed from its present situation, and might, with propriety, be placed as a *Mytilus*, unless any thing in the hinge, hereafter observable in larger specimens, should be found to bring it nearer the genus *Spondylus*.

The animal is a *Triton*, with fourteen ciliated feelers, six on each side, and two erect.

## LEPAS.

*Lepas fascicularis*. Ellis. *Zooph.* p. 197. t. 15. f. 6.

FASCICULARIS.

This species of *Lepas*, described and figured by ELLIS, is certainly very distinct from any before given; and as it was from *St George's Channel*, (meaning, we presume, the Channel between England and Ireland,) it must be considered as belonging to *British Testaceology*.

ELLIS describes it thus, "*Lepas fascicularis, testa quinquevalvi lævi corpus tegente, valvula dorsali basi dilatata, angulo acuto prominente, stipite nudo.*"

In



In size it is equal to *L. anatifera*, but differs considerably in the formation of its component parts or plates: the upper valves are pointed at the *apex*, and turn backwards, giving the front of the shell a convexity; whereas the other is rather concave: the dorsal valve spreads greatly at the base, and forms a considerably sharp, prominent angle, whereas in *anatifera*, this valve is regularly semi-circular.

—◆—  
PHOLAS.  
—◆—

DACTYLUS.  
p. 20.

Pholas Dactylus. *Don. Br. Zool.* iv. t. 118.

This shell has four accessory valves; the one, not before described, is very small, and stands erect at the inner end of the two large plates to support them. The difficulty of obtaining them quite perfect, occasioned us to believe it had only three.

CRISPATUS.  
p. 23.

Solen crispus. *Gmel. Syst.* p. 3228.

GMELIN has mistaken LISTER's shell, which is *Pholas crispatus*, and therefore has described this in both genera.

CANDIDUS.  
p. 24.

Pholas candida. *Don. Br. Shells.* iv. t. 132.

Pholas



*Pholas striata.* *Don Br. Shells.* iv. t. 117.

STRIATUS.

*Favan.* t. 60. F. 2. 3. 6. 9.—*Gualt.* t. 105. F. p. 26.

This is by some called *Pholas lignorum*, or *Dutch wood-muscle*.

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## BIVALVE.

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### MYA.

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*Mya dubia.* *Don. Br. Shells.* iii. t. 108.

PHOLADIA.

p. 28.

Plentiful at *Torbay*, in fragments of lime stone, driven on shore by winter storms, but is not to be found in the rocks, which are ever uncovered by the lowest ebb tides; and of course is rarely obtained alive: in this state, however, we have procured it, and proved beyond doubt, that it cannot belong to the *Pholades*, as it is void of accessory valves.

The perforations in which these shells are concealed, are sometimes lined with a concreted, calcareous substance, closely connected with the rest of the stone, and equally hard, composed of several coats, or *laminæ*, of a different texture, not unfrequently half a line, or more, in thickness: the openings to these chambers are small, and



and have somewhat the appearance of two holes broken into one, which is adapted to the shape of the tubes of the animal.

The inhabitant is an *Ascidia*, with two very long, slender, white tubes, exceeding the length of the shell; these are connected together their whole length, but terminated by two orifices, ciliated with fleshy fibres, of a dark purplish-brown: the body is also white; near the posterior end is a *foramen*, through which, a small foot, or *sustentaculum*, is sometimes protruded, and doubtless the apparatus, which assists in perforating rocks, being always placed in its cell with that end downwards, and incapable of turning,

It is probable this, as well as all other similar animals, whose habits are to perforate stone, are provided with an acid, or some solvent menstruum capable of performing that office: it must also be recollected, that this, seemingly laborious task, is not affected in any given time, but is the work of years; as the chamber for the lodgment of the animal, only requires enlarging as the shell grows.

Stone of a vitrifiable nature, is impenetrable to these animals, but all such as are wholly, or even partly calcareous, are more or less attacked;\* and while this, the

*Mytilus*

\* This remark might be attended with considerable national advantage, if pursued with experimental application, under the direction and encouragement



*Mytilus rugosus*, *Donax Irus*, *Venus perforans*, and some others, are destroying the hardest lime stone; the *Pholades* are performing similar works, assigned by nature, on softer substances, such as chalk, indurated clay, and wood, which in like manner are perforated by some solvent power; not by the thin, fragile shells, that cover such animals, as some have erroneously asserted, and is too generally credited. All these become fixed in their cells for life, for as they enter in the most minute state, the excavations are conic, with the small end outwards, so that the shells are as it were become enclosed.

It is most probable, the young of these, and other perforating *Ascidia*, that drill the small round holes so frequently observed on shells; and not the *Trochi*, which are incapable of such works.

Don. Br. Shells. iii. t. 73.

MARGARITIFERE-

RA.

p. 23.

Under the article *Pearl*, in the *Encyclopædia Britannica*, we find the following note:

“There has been in these parts, (i. e. at *Perth*, in “*Scotland*,) a very great fishery of *Pearl*, got out of the fresh-water *Muscles*. From the year 1761 to 1764, “10,000*l.* worth, were sent to *London*, and sold from

C c c c

“10*s.* to

of Government. A coating of pounded flint, or glass, laid on timber with a firm cement, would effectually preserve it from the calamitous ravages of the *Teredo navalis*, and other animals of similar habits.



“ 10s. to 1*l.* 16s. per ounce. We are told that a pearl  
 “ had been taken there, that weighed 33 grains. But  
 “ this fishery is at present exhausted, from the avarice of  
 “ the undertakers : it once extended as far as *Loch-Tay*.”

These *Muscles* were doubtless the *Mya Margaritifera*, and it is probable many other rivers in *Great Britain* might afford at this time a sufficient quantity to repay the experiment. In many of the rivers of *Wales*, as well as in *Devonshire*, we have observed these shells in abundance ; but whether they equally produce *pearls* we cannot determine ; those, however, found in the former rivers are usually more rugged than what are observed in the latter ; a circumstance more favourable to the production of *pearls* ; and it is a known fact, that the old, rugged, decorticated shells, are only worth examining ; the smooth ones rarely produce any, or so inferior in size, as to be of no value.

In Doctor PULTENEY's view of the writings of LINNÆUS, page 42, it is said, that the *Swedish* naturalist made a remarkable discovery relating to the generation of *pearls*, in the river *pearl-muscle*, *Mya Margaritifera*. It appears, that five or six years are requisite, after the operation, to compel them to produce *pearls* the size of a vetch.

This extraordinary operation the Doctor regrets we are unacquainted with, and which was considered of so  
 much



much importance, that the author was rewarded with a munificent premium from the states of the kingdom on that account.

It is, however, supposed, that perforations, or partial fractures in the shell, will occasion the production of *pearls*; for as these produce distortions, and ruggedness in the shells, it appears to have the same effect as on such as acquire it by age, and common accidents; but how these shells are opened without destroying the animal, and the *pearl* taken out, (which is said will be renewed again after a certain period) we do not pretend to determine.

*Mya depressa.* Don. Br. Shells. iii. t. 101.

*Mya ovata.* Don. Br. Shells. iv. t. 122.

OVALIS.

p. 34.

Although Mr. DONOVAN has given these two shells as distinct, he very justly expresses a doubt. That they are only varieties we cannot hesitate to determine; and we have already gone further, by giving them as ponderous varieties of our *Mya Ovalis*. DONOVAN observes, both these shells inhabit the *New River*, near *London*, and the *Froome* in *Somersetshire*. We have found them in the *Avon*, many miles above and below its conflux with the *Froome*: at *Bath* they are thrown up in great abundance after floods, and commonly used for putting colours in.



That it is difficult to discover specific characters of distinction in some of the productions of nature, all naturalists will allow; and when no permanent distinguishing marks appear, we can only refer to habits: in following this course there seems nothing to divide these two shells from each other, nor from that which we have described as the *ovalis*: all the gradations that join them are commonly found in the same waters. That the soil and nature of the water have considerable effect upon shells, there can be no doubt, particularly in strength, and colour; for instance, these subjects, which are figured in the *British Shells*, with elegant yellow *radii*, are rarely found in the *Avon* with such markings; and instead of the ground colour being green, are usually of a dark olive-brown, and frequently dusky.

The animals of these fresh-water *Myæ*, are certainly not *Ascidia*, but are similar to those inhabiting the river *Mytili*.

SUBORBICULARIS  
p. 39.

This shell, which is so similar in shape to the *Cardium corneum*, is essentially different in the animal inhabitant, which appears to be a *Tethys*, of a very pale colour, with one long tube, not internally divided, but furnished with only one opening: and about the middle of the shell in front, is a retractile, slender foot, half as long as the *syphon*, capable of adhering to the smoothest surface, and will ascend the sides of a glass filled with sea-water. The animal of *C. corneum* is similar to that of *C. lacustre*.

SOLEEN.



## SOLENS.

Solen marginatus. *Don. Br. Shells. iv. t. 110.*

VAGINA.  
p. 48.

This, which has generally been considered as a rare PELLUCIDUS. species, we have found plentiful at *Torcrofs*, by dredging. p. 49.

Solen antiquatus. *Don. Br. Shells. iv. t. 114.*

ANTIQUATUS.  
p. 52.

Have since seen specimens in the cabinet of Mr. BRY-FRAGILIS. ER, taken on the shore near *Weymouth*. p. 51.

S. with an extremely flat, pellucid, thin, white shell, SQUAMOSUS. of a sub-orbicular shape; most minutely, and elegantly punctured all over, appearing under a common pocket lens, like fine shagreen; besides which, there are a few obscure, concentric wrinkles, most conspicuous round the margin: *umbo* very small, pointed, central, and not turning to either side. Inside smooth, glossy white, with obscure striæ radiating from the hinge; margin plain, and rather more opaque than the rest of the shell: teeth two, double, diverging on each side the *umbo*; these are thin, but stand erect, considerably above the commissure; a depression, or furrow, on the margin, divides each tooth into two *laminæ* almost to the beak, where they are united and form an acute angle.

One



One valve of this curious shell has as yet only come under inspection; we found it in sand from *Salcomb* bay: it was recent, and as clear and pellucid as the *Bulla aperta*; being very flat, has the appearance of a scale of a fish. Length three eighths of an inch; breadth half an inch.

The hinge does not appear to strictly belong to any of the *Linnæan* genera, but seems to be most nearly allied to the *Solen*, which has induced us to give it a place as such, for the present.



PINNA.

Tab. 15. f. 3.

S. with a thin, pellucid, fragile, depressed, white shell, of a sub-oval shape, strongly wrinkled concentrically: *umbo* small, placed very near the smaller end, from whence the connecting cartilage runs in a straight line on the longest side, and joins the valves nearly the whole width of the shell, like a *Pinna*; the short end declines a little from the beak; the margin opposite the hinge is semi-circular, and extremely thin and brittle; the valves are dissimilar, the upper is a little convex, the lower slightly concave.

Inside white, somewhat pearly: a blunt tooth in each valve running straight from the beak; that in the concave valve is largest, and uneven on its surface; these are not inserted, but stand by the side of each other when the valves are closed.

Length



Length from hinge to the opposite margin above three-eighths of an inch; breadth three-quarters.

This curious, nondescript species, we took alive, by dredging at *Torcrofs*.

## TELLINA.

*Tellina inaequistriata*. *Don. Br. Shells*. iv. t. 123.

LÆTA.

p. 57.

*Tellina rigida*. *Don. Br. Shells*. iii. t. 103.

CRASSA.

p. 65.

*Venus borealis*. *Don. Br. Shells*. iv. t. 103.

RADULA.

p. 68.

We cannot agree with Mr. DONOVAN in considering this shell the *Venus borealis* of GMELIN: it is perhaps difficult to determine the true *Linnæan* shell, under that denomination.

GMELIN is by no means correct in his synonyms, having referred to no less than three very different species for it; that of GUALTIERI, quoted tab. 75. fig. 5. is probably intended for fig. S. as there is no fig. 5. in the plate: those in LISTER'S *Conchology*, and *Anim. Angliæ*, are our *Mastra compressa*, the *Venus borealis* of PENNANT:



NANT: that referred to in CHEMNITZ, may possibly be the true *borealis*, but that author also unfortunately quotes LISTER, and GUALTIERI the same; none of which are the least like this shell.

—  
CARDIUM.  
—

ECHINATUM.  
p. 78.

*Cardium echinatum.* Don. Br. Shells. iii. t. 107. f. 1.

TUBERCULATUM.

*Cardium tuberculatum.* Don. Br. Shells. iii. t. 107. f. 2.

The shell figured by this author, is a very good representation of that ponderous *Cardium*, we made mention of under the article of *Cardium echinatum*. It probably is the *Gmelinian tuberculatum*, and possibly a distinct species.

We have noticed this strong and thick shell, destitute of spines, on the shore of *Dawlish warren* at the mouth of the *Ex* in *Devonshire*, where at times it is plentiful; and have remarked, that on other parts of the same coast where we have taken the *echinatum*, and *aculeatum*, not one of these strong shells were to be found; a circumstance that favours an opinion of its being distinct.

It probably inhabits the deep, as we have never yet obtained it alive.

*Cardium*



*Cardium edule.* *Don. Br. Shells.* iv. t. 124. f. 1. 1.

EDULE.

p. 76.



*Cardium rusticum.* *Don. Br. Shells.* iv. t. 124. f. 2.

RUSTICUM.

This is another of this very intricate class that seems to have puzzled the conchologist. It is said to grow to a larger size, and to possess fewer ribs than the *edule*, and those more elevated; but whether it is really distinct from that shell, certainly admits of doubt.

We lately received from a testaceological friend, Mr. SWAINSON, what he considers as the *rusticum*, observing, that such were known by the name of *Rosscockle*, and were sold for three pence per dozen, on the *Essex* coast, when half a peck of the common sort sold only for one penny: such are taken only on one particular sand off *Leigh*, after strong gales of wind.

This shell very well accords with that figured by DONOVAN, and is not unlike that given by CHEMNITZ, which GMELIN quotes. If it is really distinct from *edule*, we fear no permanent character will be found, by which it may be distinguished from the latter, as the number of ribs vary. That the smaller *cockles* are usually destitute of the rufous colour, and are more sub-orbicular, must be admitted; the ribs are also finer; but are not these marks the effect of immaturity?

D d d d

If



If the larger sort is distinct, it appears equally plentiful with the other, for we have observed in many places, this is the sort principally eaten, the smaller ones being rejected as young, and left to grow larger; and we must confess, that the great variety now before us, run so much into each other, as to render it impossible to divide them, although the two extremes appear different.

LACUSTRE.  
p. 89.

The animal of this shell, as well as its congeners *cornutum* and *amnicum*, is certainly an *Ascidia*, not a *Tethys* as was stated by mistake.

## MACTRA.

SUBTRUNCATA.  
p. 93.

*Mastra subtruncata.* Don. Br. Shells. iv. t. 126.

STULTORUM.  
p. 94.

*Mastra stultorum.* Don. Br. Shells. iii. t. 106.

COMPRESSA.  
p. 96.

*Tellina plana.* Don. Br. Shells. ii. t. 64.

By mistake we have referred to this shell of DONOVAN, under the title of *Tellina borealis*, instead of *plana*.

Mastra



*Mastra glauca.* Gmel. *Syst.* p. 3260. 20.

GLAUCA.

*Chem. Conch.* vi. t. 23. f. 232. 233.

*Born. Mus.* t. 3. f. 11. 12.

*Don. Br. Shells.* iv. t. 125.

M. with an oval shell, of a dirty-white colour, very finely striated transversely, and marked with broad and narrow glaucous rays: the anterior end wrinkled: the the beaks reflect backwards, with a narrow gape between them. Length usually two inches and a half; breadth three and a half.

On the authority of Mr. DONOVAN this is added to the *Fauna of British Shells*; who informs us, it was discovered by Miss Pocock in 1801, on *Hale* sands, under *Lelant* in *Cornwall*. It is probable these extensive sands may be very productive at times, but we must consider this lady as extremely fortunate; for in our visits to that part of the *Cornish* coast, especially lately at the place mentioned, and about *St. Ives*, no such shell was to be found, although *Venus Chione* was plentiful, and which was brought to us by the fishermen for *M. glauca*, not knowing the difference: this may account for their saying this shell is at times found on that coast in plenty.

The very good figure given in the *British Shells*, is considerably larger than is usually described, measuring three inches and a half, by four and a half.

D d d d 2

M. with



TENUIS,

M. with a compressed, sub-triangular, equilateral, semi-pellucid, thin, white shell, concentrically wrinkled: *umbo* small, central, much produced, and not turning to either side.

Inside moderately smooth and glossy, with a broad, but nearly obsolete, conic *cicatrix*, running to a point across the middle of the shell, towards the beak: hinge furnished with a bifurcated tooth, and a narrow *foviola*; and remote, lateral, laminated teeth, one on each side in one valve; in the other a plain single tooth, with a corresponding cartilage cavity, but no lateral *laminæ*. Length a quarter of an inch; breadth rather more.

We first discovered this species at *Southampton*, where it is not uncommon on the shore to the west of the town: and have since received it from Mr. BRYER of *Weymouth*.

The hinge is somewhat similar to that of *M. compressa*. but the *foviola* is not so broad, and is at once distinguished by the lateral teeth, which that shell is destitute of: it differs also in shape, being much more angulated, and produced at the beak, as well as the *cicatricula*.

In comparing it with the young of *Maclra solida* and *Stultorum*, it differs from them, not only in shape, but essentially in the central, or primary teeth, and in possessing lateral ones only in one valve, which both valves of those shells are furnished with.

The



## DONAX.

The animal inhabitant of this shell is an *Ascidia*, and not a *Tethys*; which is probably the case with most such whose nature it is to perforate other bodies: it has two slender, pellucid, white tubes, spotted with opaque white; these are not half so long as the shell, and joined together, except near the end, where they diverge, and become of a pink colour, the openings ciliated with feathered fibres of the same: in some the points and fringe are of the same colour as the rest of the tubes.

IRUS.

p. 108.

D. with a strong, glossy, chestnut-coloured shell, furnished with a few irregular, transverse, antiquated ridges, or wrinkles; one single ray of the same colour, but darker, runs from the beak to the opposite margin, in a curved direction, and divides each valve nearly in equal parts; from this to the posterior end the colour becomes pale: *umbo* obtuse, rather inclining to the anterior, or longest side. Inside of the same colour, smooth and glossy, with a small trace of the ray at the margin: hinge very strong; teeth, one very large, and one small, in each valve; no lateral teeth: *cicatrix* broad, running from the anterior side one third across the shell, in a transverse direction, from which continues a marginal line almost to the opposite side: margin plain. Length a quarter of an inch; breadth three-eighths.

CASTANEA.

This



This appears to be a nondescript species, at least we have not been able to find any thing like it described: it comes nearest to *Donax plebeia* in shape, being sub-cuneiform, and the teeth are equally strong in proportion; in these, however, it differs, especially in their obliquity, being the reverse of each other; that shell, too, has a lateral tooth, and the beak turns towards the posterior or short side; whereas, in this, if any thing, it is inclined to the longer or anterior side.

It appears to be a rare species, as only one mutilated specimen of a single valve, had come under examination till very lately, which was taken at *Falmouth* in *Cornwall*, five or six years ago; from which we did not choose to hazard a description: a few other specimens, recently found at *St. Austle's* bay in that county, and on the coast of *Devon*, has enabled us to add it to the catalogue of *British Shells*. They are all exactly alike in colour and markings.

—◆—  
VENUS.  
—◆—

UNDATA.  
p. 117.

Venus undata. *Don. Br. Shells.* iv. t. 121.

CANCELLATA.

Venus cancellata. *Don. Br. Shells.* iv. t. 115.

This may possibly be *V. cancellata* of GMELIN p. 3270.  
but



but be that as it may, it is without doubt the young of *Venus verrucosa*: in that state it is not only much less convex, but the transverse ridges are much thinner, destitute of the warty appearance, or very imperfectly so at the anterior end, and faintly striated longitudinally in the furrows, which gives it a cancellated appearance towards the beak, where the transverse ridges are not much elevated.

When these shells attain the length of an inch and a quarter, or thereabouts, they lose the longitudinal striæ, and the ridges become strongly verrucose; they are, however, in most of the full grown specimens, to be traced about the *umbo*.

CHEMNITZ has figured the young *V. verrucosa* vol. vi. tab. 29. fig. 304. 305. and refers to the *V. cancellata* of LINNÆUS: and in the same tab. fig. 306. 307. is another which he gives as a variety; this is much broader in proportion to its length, than what the *verrucosa* is usually found to be. These figures GMELIN quotes for his *V. cancellata*; so that by collating these references with the figures in question, and comparing the various and numerous specimens, now before us, of the *verrucosa*, from the size of a pea upwards, we have very little doubt but in its younger state it has been described as a distinct species, under the title *cancellata*; and that these are actually one and the same shell, in different periods of growth. It must also be remarked, that the *verrucosa*



is subject to other varieties, from having its ridges partly worn down; in this state the warty appearance is lost even in the largest shells, the ridges become smooth, not reflected, and destitute of longitudinal striae: in young shells, when the ridges are partly worn, the longitudinal striae become more conspicuous. These varieties have been the cause of much perplexity, but an opportunity of examining on the western coasts some hundreds of these shells in all stages, may be allowed to warrant such an opinion.

VIRGINEA.  
p. 128.

The figure in the *Br. Zool.* tab. 55, without number, is probably intended for the description of *Venus rhomboides* of that work, as the number of that shell is 55, and there is no other figure with that number. The reference to Mr. PENNANT should therefore stand thus for our *virginea*. *Ven. rhomboides*, *Br. Zool.* No. 55. tab. 55. figure without number.

AUREA.  
p. 129.

Having quoted *Venus rhomboides* of *Br. Zool.* for this shell by mistake, we beg it may be removed to *Venus virginea*, and coupled with the figure there referred to: and in its stead the *Tellina rugosa* of PENNANT to be placed as the *V. aurea*, the reference to which, will stand thus: *Tellina rugosa*, No. 34. tab. 57. fig. 34.

V. with



V. with a strong, sub-triangular, yellowish-white shell, TRIANGULARIS, with a few antiquated, concentric ridges, in other respects smooth: *umbo* central, remarkably prominent, and turned a little to one side; each side sloping nearly equal, and forming the umbonal regions into an acute angle; under the beak a lanceolate, cordiform depression. Inside smooth; hinge very strong in proportion, furnished in one valve with two strong teeth, one running backwards parallel with the cartilage slope, bifid, or divided longitudinally; the other is triangular; and near it, running parallel with the cordiform depression, is a strong, lateral *lamina*, of a semi-lunar shape, the convexity inwards; and a deep groove between that and the margin: the other valve is possessed of three teeth, two of which greatly diverge, in order to admit the triangular tooth of the opposite valve between them; and a lateral tooth, which locks in between that and the marginal edge; the margins are plain. Length half an inch; breadth nearly the same.

This extremely rare shell, was found on the coast of Devonshire.



V. with a sub-oval, sub-triangular, yellowish-white SPINIFERA, shell, wrought with numerous, fine, concentric, parallel, equidistant, elevated, and somewhat reflected ridges, about thirty six in number: these ridges at the anterior  
 E e e e side,



side,\* on the margin of the cartilage slope, on both valves, become confluent in pairs, and form short, obtuse spines, reflecting backwards; this double row of spines forms a deep cavity for the cartilage: *umbo* small, nearly central, and turned a little to one side, beneath which, is a strong, lanceolate, cordiform depression. Inside smooth, white; hinge furnished with a single primary tooth, and a small cavity on each side in one valve, which locks in between, and reciprocally receives two in the other valve; the former has also a remote, lateral *lamina* on each side, which the latter is destitute of, or very obsolete: the margins are plain. Length half an inch; breadth rather more.

This new, and interesting species, has somewhat the habit of that rare, and valuable shell *Venus Dione*; and, indeed, is not unlike the figure of it given by LISTER, but the spines are neither so conspicuous, nor placed so remote from the end; this shell, too, wants the inner row of spines on each side, observable in the other, and also differs somewhat in the hinge.

In shape, it much resembles *Venus striatula*, but rather longer in proportion to its breadth; the concentric ridges are, however, finer; and more resemble those on the young *Tellina Radula*.

We

\* This is usually termed the anterior end, but certainly is more properly the posterior, for the tube, or part from which the animal receives sustenance, is protruded at the other end; and in all bivalve shells, is uppermost in their native sand.



We found a perfect shell of this curious species, in a heap of sand, that was brought from *Salcomb* bay; and a single valve, larger than the above described.

—  
CHAMA.

—  
Chama cor. *Don. Br. Shells.* iv. t. 134.

COR.  
p. 134.

—  
PECTEN.

—  
*Ostrea lineata.* *Don. Br. Shells.* iv. t. 116.

LINEATUS.  
p. 147.

There are several beautiful, and singular varieties of this species; some are dull yellow, others purplish-brown or chesnut, with one or both valves mottled, and sometimes streaked with white, or yellowish; and though apparently smooth, when examined by a lens, are found to be very finely shagreened. One specimen in our cabinet, has the margin, for the breadth of one tenth of an inch, very conspicuously ribbed or rayed, the rest of the shell more strongly shagreened than usual; the rayed part divided from the other, by a very regular concentric line; the rays about fifty in number: the inside edge finely crenated.

LÆVIS.  
p. 150.



This was taken at *Plymouth* by the trawl net, and is rather larger than that before described.

## OSTREA.

STRIATA.  
p. 153.

In making this shell of LISTER an *oyster*, we had followed our precursors, but not without doubt; for though we had never seen the flat, or what had been termed the upper valve, there always appeared sufficient character in the hinge of the convex valve, to have placed it with the *Anomiæ*, had not LISTER, DA COSTA, and others, spoken of it as an *Oyster*, with so much confidence. It is, however, beyond dispute, an *Anomia*, and we think, there is so little doubt with respect to the *A. undulata* being only the young of it, that the *synonyma* of these two shells, should be brought together under the title of the latter.

It is now easily accountable, why so many concave, or, as was termed, the under valves, were found in proportion to the upper or flat valve; for, as DA COSTA says, there are hundreds of the former found to one of the latter. The fact is, that the striated, or concave valve, is the upper, and the flat, or perforated valve adheres so firmly to the rocks, as not often to be separated with the other; and therefore the perfect shell is never met with but alive, adhering to other substances: indeed,



indeed, this valve would not be discriminated from that of *A. Ehippium*, if found detached from the other, being always destitute of striæ. It is evident, therefore, those who have described the flat valve, must have mistaken for it, the flattest of the concave valves that have been somewhat worn, as DA COSTA expresses it, "the outside work is generally more obsolete." We have recently taken alive, a few larger and stronger specimens, on the south coast of *Devon*, adhering to old bivalves, (about an inch and a quarter in diameter,) which confirms our opinion.

All the *Anomiæ* are subject to such variation in growth, that it is impossible to fix permanent specific characters to many of them, and we suspect the exotic species are multiplied beyond their natural limits.

When we gave the *A. Squamula* as distinct, it was more from popular opinion, all of which seems to have flowed from LINNÆUS; we must, however, acknowledge, that if the *Squamula* is continued as distinct, we shall in all probability never find the young of the *Ehippium*; if, therefore, the synonyms of *Squamula* as well as *Cepa*, were conjoined to those of *Ehippium*, no violence would be offered to nature, for there really are no distinguishable characters.

## MYTILUS.

*Mytilus edulis.* Don. *Br. Shells.* iv. t. 128. f. 1. f.

EDULIS.

*Mytilus* p. 159.



## UNGULINUS.

*Mytilus unguinus.* *Don. Br. Shells.* iv. t. 128. f. 2. 2.

*Gmel. Syst.* p. 3354. 12.

*Chem. Conch.* viii. t. 84. f. 747.

*Id.* t. 85. f. 756.

On the authority of Mr. DONOVAN, this is given as a *British* species; who says, "several shells of this kind "were picked up by Miss Pocock, on the coast of "Cornwall."

It very much resembles *M. edulis*, but is generally allowed to be more pointed, and curved at the beak; beneath which it swells, or projects more at the posterior margin: according to different authors, the hinge seems to be furnished with from two to six teeth at the tip, and the groove with numerous *crenulæ*: valves very convex, of a greenish, or blueish-black colour. Length four or five inches; breadth from two, to two and a half.

Inhabits *New Zealand, Cape of Good Hope, and Mediterranean.*

Much caution is requisite, in determining the species of this genus, so similar to each other, and subject to so much individual variation by climate, and other circumstances: which have already, we fear, been the occasion of multiplying the species beyond their natural bounds.

## ANATINUS.

*Mytilus anatinus.* *Don. Br. Shells.* iv. t. 113.

p. 171.

PINNA.



## PINNA.

This species, is doubtless the same as Mr. PEN-INGENS. NANT noticed in the cabinet of Doctor WALKER of p. 180. *Moffat*; we are informed by the author of the *Elements of Natural History*, vol. 2. p. 381. that a very large species was found by Doctor WALKER, off the island of *Barra*, in 1764; called by him *Pinna borealis*.

## UNIVALVE.

## BULLA.

*Bulla aperta*. *Vignette* 2. f. 1.—animal, f. 2.—its gizzard, APERTA.  
f. 3. 4. p. 208.

*Don. Br. Shells*. iv. t. 120. f. 1.

*Bulla Haliotoidea*. *Vignette* 2. f. 6. enclosed by the animal. HALIOTOIDEA.  
p. 211.

*Bulla plumula*. *Vignette* 2. f. 5. enclosed by the animal. PLUMULA.  
p. 214.

*Bulla*



HYDATIS.  
p. 217.

*Bulla Hydatis.* *Vignette* 1. f. 1. 2.—animal's gizzard, 3. 4. 5.

CYLINDRACEA.  
p. 221.

*Bulla cylindrica.* *Don. Br. Shells.* iv. t. 120. f. 2.

It is unfortunate, that this shell, which was properly first named by Mr. PENNANT, and we believe has hitherto only been noticed as *British*, should have been so confounded; especially, as the figure given in the *British Zoology* is very expressive.

DA COSTA first led to these errors, by making it the *Voluta pallida* of LINNÆUS, not knowing the shell. DONOVAN, following DA COSTA, fell into the same error; but afterwards corrected his mistake, by figuring the true *cylindracea* of PENNANT, and by acknowledging, that it more clearly corresponds with that shell than the *V. pallida*: unfortunately, however, this author has referred to *Bulla cylindrica* of GMELIN, a species totally different, and not the least allied to it, if we may judge from the figure referred to by that author, in FAVANNE, CHEMNITZ, and GUALTIERI: nor does he quote the *British Zoology*.

Doctor PULTENEY was not aware, or rather, did not recollect, that the name of *cylindrica* was preoccupied for a very different species of *Bulla*, or certainly he would not have recorded it by that name, and thereby have continued perplexity; but he seems to have been induced to do so, from its being so called in the *Museum Port-*



*Portlandicum*. As, however, Mr. PENNANT was the original author of the name given to the shell in question, and whom DOCTOR PULTENEY quotes, and not the *cylindrica* of GMELIN, it could be wished he had adopted the name of the former, and not of the latter.

LISTER probably was the first who figured *B. cylindracea*, Tab. 714. fig. 70. and has marked it with an A. denoting it as *English*; at the same time adding (*Barnstable*,) the place from whence he obtained it. With two figures of this shell is also placed *Voluta pallida*, without any number, or mark to denote distinction; and over them are these words, "*exigua, alba, vere cylindracea*:" this circumstance has, amongst other things, served to confound these shells.

## BUCCINUM.

Buccinum undatum. Don. Br. Shells. iii. t. 104.

UNDATUM.

p. 237.

We have been lately favoured with a variety of this AMBIGUUM. shell from Mr. RACKET, much thinner, and with a greater number of ribs, (fifteen instead of eleven) and those regularly and finely striated transversely, without rising into tubercles.

F f f f

MUREX.



## MUREX.

GRACILIS.  
p. 267.

At the time we described this shell, one specimen only had occurred, and that somewhat worn. We have now the satisfaction to say that, Mr. BRYER has since favored us with a live specimen, taken with two or three others, by dredging in the west bay of *Portland*. This is larger, exceeding an inch in length, with thirteen ribs: the whole shell of a yellowish brown, except between the junction of the spires, which is purplish-brown, and a white band round the middle of the body whirl, beginning at the upper angle of the aperture, and terminating about the middle of the outer lip; the same mark appears in the other, but almost obsolete: the exterior lip is sharp at the edge, thickened at the back by a rib, and sub-crenated within. This extremely rare *Murex*, is one of the most beautiful of the *British* species.

## TROCHUS.

TENUIS.  
p. 275.

*Trochus papillofus*. *Don. Br. Shells*. iv. t. 127.

## TURBO.

JUGOSUS.

T. with a sub-oval, ventricose shell, with four spirally ridged volutions; the first very large, occupying three-fourths



fourths of the shell: *apex* not much elevated, but moderately pointed: aperture sub-orbicular; outer lip thin, sub-crenated by the ridges; pillar lip broad and smooth, imperforated.

Diameter about three-eighths of an inch, usually as broad as it is high.

We received a shell of this description from a conchological friend, for the *T. obtusatus* of LINNÆUS; it was of a dull orange-yellow colour, and was taken on the coast of *Dorset*.

Mr. GIBBS, who has recently taken at our desire, a tour of research on the coast of *Cornwall*, brought several of these shells from the rocks at low water-mark, near *St. Ives*.

These agree in every respect with that from *Dorsetshire*, except in colour; some are dark-purple, with the ridges white; others greenish on the outside, the inside dark purplish-brown, or chocolate-colour: on the body are ten or eleven, much elevated, sharp ridges, reflecting a little upwards; on the second volution are three or four, and sometimes the same on the third, but more commonly worn smooth.

Amongst the variety of littoral shells that have puzzled the most able testaceologists, and which in the com-



mon periwinkle, *T. littoreus*, and *T. rudis*, differ so much at various periods of growth, that it is no easy matter to identify them; this seems to be the most distant, without the gradations which might bring it to any of its congeners; but is certainly not *T. obtusatus*, which is described to be smooth, roundish, and very obtuse; a shell we have before, under the article *Turbo littoreus*, doubted if not a variety. We must, however, confess that, although we have in part fallen into the opinion of scientific friends, in giving this a distinct place, yet we are not without suspicion, that the intermediate links may be found on some parts of our coasts, that would connect this with *T. littoreus*, as the varieties of that shell in its infant state are infinite.

## HELIX.

OCTANFRACTA  
p. 396.

In the former part of this work, we referred this shell to *H. oclona* of the *British Zoology*, but with doubt: we are indeed almost inclined to think, the figure of a mutilated specimen given in that work, must be referred to the *Linnæan oclona*, which the author has quoted, and in which he had probably been deceived, as to its being *English*, as others have.

Mr. PENNANT's description unfortunately conveys little or nothing, and a mutilated figure not much more;  
fo



so that we must ever remain in the dark with respect to his intentions; indeed, he seems to have been quite unacquainted with any thing relative to the history of the shell, as a native of this county, and therefore our doubts will the more readily be pardoned.

This author has referred to a minute shell in GUALTIERI, tab. 6. fig. B. for his shell; the *Buccinum terrestre* of this work, a species not in the least like what is considered in general by collectors as the *H. octona* of LINNÆUS; and yet GMELIN has fallen into the same error, by quoting the same figure in GUALTIERI, though he does not notice PENNANT's shell.

DoCTOR TURTON, of course, has followed GMELIN's errors, and has added a reference to PENNANT's shell; though he has omitted the *Buccinum Acicula* of MULLER, which the other has as erroneously quoted.

The *H. octanfracta* is, as we have before asserted, perfectly distinct from these shells, except that of the *Br. Zoology*, and possibly may be entirely new, as hitherto we believe it has only been found in one place, and that in *Cornwall*, as remarked in the former history of it.

If it really is a new species, the merit of its discovery rests with Mr. GIBBS, whose industrious exertions for collecting, and excellent discrimination, especially of the more minute species, have tended to enrich these sheets.

In



In a recent visit to the neighbourhood where this shell was discovered in the year 1798, strict search was made, with a view to ascertain if it had spread; but although a great many were observed of all ages, in the same muddy pool, on the side of the high road, upon the top of a hill; not one could be found in similar situations, either contiguous, or in any other parts of the country. From these we renewed our *cochlearium*, the first colony having failed, probably from the different nature of the waters.



ASPERSA.  
p. 407.

*Helix hortensis*, Don. *Br. Shells*. iv. t. 131.

ALPHA.



## ALPHABETICAL INDEX.

| A          |               | Page.   |                 |            | Page.   |
|------------|---------------|---------|-----------------|------------|---------|
| ACICULA    | Buccinum      | 248     | Anatiferus      | Balanus    | 15      |
| Aculeata   | Anomia        | 157     | Anatinus        | Mytilus    | 171 582 |
| Aculeata   | Helix         | 429     | Angulata        | Serpula    | 511     |
| Aculeatum  | Cardium       | 77      | Anserifera      | Lepas      | 16      |
| Acuminatus | Murex         | 267     | Antiquata       | Patella    | 485     |
| Acuta      | Helix         | 384 436 | Antiquatus      | Solen      | 52 565  |
| Adversus   | Murex         | 271     | Antiquus        | Murex      | 257     |
| Adversus   | Turbo         | 226     | Aperta          | Bulla      | 208 583 |
| Æreus      | Turbo         | 310     | Apertura        | Patella    | 491     |
| Akera      | Bulla         | 219     | Arbustorum      | Helix      | 413     |
| Alba       | Mastra        | 98      | Arctica         | Cypræa     | 201     |
| Alba       | Voluta        | 235     | Arcuatum        | Cardium    | 85      |
| Alba       | Helix         | 459     | Arenaria        | Mya        | 30      |
| Alba       | Nerita        | 472     | Arenaria        | Sabella    | 552     |
| Albella    | Helix         | 437     | Arenaria        | Chama      | 30      |
| Albida     | Patella       | 489     | Arenosa Anglica | Tubularia  | 540     |
| Albidus    | Turbo         | 299     | Argentea        | Glycymeris | 141     |
| Albulus    | Turbo         | 332     | Asperfa         | Helix      | 407 590 |
| Albus      | Chiton        | 4       | Atrata          | Helix      | 373     |
| Albus      | Strombiformis | 400     | Attenuatus      | Murex      | 266     |
| Albus      | Turbo         | ib.     | Avonensis       | Mytilus    | 172     |
| Albus      | Planorbis     | 459     | Aurea           | Venus      | 129 576 |
| Alveolata  | Sabella       | 540     | Auricoma        | Amphitrite | 545     |
| Ambiguum   | Buccinum      | 242 585 | Auricularia     | Helix      | 375     |
| Annica     | Tellina       | 86      | Auricularis     | Turbo      | 308     |
| Amnicum    | Cardium       | ib.     |                 | B          |         |
| Ampulla    | Bulla         | 206     | Balanoides      | Lepas      | 7       |
| Anatifera  | Lepas         | 15      | Balanoides      | Balanus    | ib.     |
|            |               |         |                 | Balanus    |         |



|                    |               | Page.   |             |               | Page.   |
|--------------------|---------------|---------|-------------|---------------|---------|
| Balanus            | Lepas         | 6       | Cancellatus | Turbo         | 315     |
| Balaena            | Balanus       | 14      | Candida     | Pholas        | 25      |
| Balænaris          | Balanus       | ib.     | Candidus    | Pholas        | 24 558  |
| Balauſtina         | Tellina       | 61      | Cantiana    | Helix         | 422     |
| Barbata            | Arca          | 138     | Caperata    | Helix         | 430     |
| Barbatus           | Mytilus       | 161     | Capillaccus | Pectunculus   | 116     |
| Beccarii           | Nautilus      | 186     | Carinata    | Helix         | 451 464 |
| Beccarii perversus | Nautilus      | 187     | Carinata    | Serpula       | 502     |
| Belgica            | Sabella       | 545     | Carinatulus | Nautilus      | 195     |
| Bicarinatus        | Strombiformis | 296     | Carinatulus | Turbo         | 331     |
| Bicolor            | Helix         | 447     | Carinatus   | Pecten        | 147     |
| Bicorne            | Vermiculum    | 519     | Carinatus   | Murex         | 257     |
| Bicornis           | Serpula       | 519     | Carinatus   | Turbo         | 306     |
| Bidens             | Turbo         | 357 361 | Carinatus   | Planorbis     | 451     |
| Bidens             | Helix         | 359     | Carnaria    | Tellina       | 63 74   |
| Bidentata          | Mya           | 44      | Carneofum   | Cardium       | 74      |
| Bidentata          | Turbo         | 234     | Carychium   | Turbo         | 339     |
| Bifasciata         | Helix         | 346     | Carychium   | Helix         | ib.     |
| Bifrons            | Pholas        | 23      | Caffina     | Venus         | 113     |
| Bilineatum         | Buccinum      | 244     | Caſtanea    | Donax         | 573     |
| Bimaculata         | Tellina       | 69      | Catena      | Cochlea       | 469     |
| Bimaculata         | Patella       | 482     | Catena      | Bulla         | 215     |
| Biplicatus         | Turbo         | 361     | Catenata    | Voluta        | 236     |
| Borealis           | Tellina       | 96      | Caudata     | Arca          | 140     |
| Borealis           | Venus         | 96 567  | Cepa        | Anomia        | 155     |
| Borealis           | Pinna         | 583     | Chinenſis   | Patella       | 489     |
| Boſſii             | Maſtra        | 98      | Chione      | Venus         | 115     |
| Breve              | Buccinum      | 250     | Chryſodon   | Sabella       | 546     |
| Bryereus           | Turbo         | 313     | Ciliare     | Cardium       | 79      |
| Bubble             | Bulla         | 208     | Cinctum     | Buccinum      | 246     |
| Bulla              | Planorbis     | 226     | Cinctus     | Turbo         | 295     |
| Bullata            | Cypræa        | 202     | Cinctus     | Strombiformis | 295     |
|                    | C             |         | Cinerarius  | Trochus       | 284 286 |
| Caerulea           | Patella       | 477     | Cinereus    | Trochus       | 289     |
| Calcar             | Nautilus      | 189     | Cinereus    | Chiton        | 3       |
| Canaliculatus      | Turbo         | 323     | Cingenda    | Helix         | 418     |
| Canalis            | Turbo         | 309     | Cingillus   | Turbo         | 328     |
| Cancellata         | Venus         | 574     | Cimex       | Turbo         | 315     |
|                    |               |         | Cirrata     | Sabella       | 550     |
|                    |               |         |             | Cirrata       |         |



|                 |               | Page.   |                |               | Page.       |
|-----------------|---------------|---------|----------------|---------------|-------------|
| Cirrata         | Terebella     | 550     | Costatus       | Strombus      | 255         |
| Clathratulus    | Turbo         | 297     | Costatus       | Strombiformis | ib.         |
| Clathratus      | Strombiformis | 296     | Costatus       | Turbo         | 311 400     |
| Clathrus        | Turbo         | ib.     | Costatus       | Nautilus      | 199         |
| Clavatus        | Balanus       | 10      | Crassa         | Tellina       | 65 567      |
| Coarctata       | Helix         | 445     | Crassa         | Venus         | 65          |
| Coeruleata      | Patella       | 477     | Crassa         | Helix         | 457         |
| Communis        | Balanus       | 6       | Crassior       | Turbo         | 309         |
| Compactilis     | Helix         | 387     | Crassulus      | Nautilus      | 191         |
| Complanata      | Donax         | 106     | Crassum        | Cardium       | 80          |
| Complanata      | Helix         | 450     | Crassus        | Pectunculus   | 114         |
| Compressa       | Mastra        | 96 570  | Crassus        | Trochus       | 281         |
| Compressa       | Sabella       | 555     | Crassus        | Turbo         | 311         |
| Conchilega      | Sabella       | 547     | Crenella       | Helix         | 441         |
| Conchilega      | Terebella     | 545 547 | Crenulata      | Donax         | 104         |
| Conchilega      | Nereis        | 544     | Crinita        | Arca          | 138         |
| Coniferus       | Turbo         | 314     | Crinitus       | Chiton        | 4           |
| Conoides        | Balanus       | 12      | Crispata       | Pholas        | 23          |
| Conoides        | Lepas         | ib.     | Crispatus      | Pholas        | 23 558      |
| Conoides        | Pholas        | 26      | Crispus        | Nautilus      | 187         |
| Contorta        | Helix         | 457     | Crista galli   | Mytilus       | 166         |
| Contortuplicata | Serpula       | 509 511 | Cristata       | Helix         | 460         |
| Contortus       | Planorbis     | 457     | Cristata       | Valvata       | ib.         |
| Conulus         | Trochus       | 274 277 | Cristatus      | Trochus       | 349         |
| Cor             | Chama         | 134 579 | Cultellus      | Solen         | 52          |
| Cornea          | Tellina       | 86      | Curtus         | Mytilus       | 161         |
| Cornea          | Helix         | 448     | Curta          | Sabella       | 554         |
| Cornea          | Serpula       | 503     | Curvirostratus | Mytilus       | 164         |
| Corneum         | Cardium       | 86      | Cygneus        | Mytilus       | 170         |
| Corneus         | Murex         | 258     | Cylindracea    | Bulla         | 221 232 584 |
| Cornu arietis   | Helix         | 449     | Cylindraceus   | Turbo         | 335         |
| Cornubienfis    | Tellina       | 108     | Cylindrica     | Bulla         | 221         |
| Cornubienfis    | Lepas         | 6       |                |               |             |
| Corrugata       | Serpula       | 502     |                | D             |             |
| Costata         | Lepas         | 11      | Dactylus       | Pholas        | 20 558      |
| Costatum        | Buccinum      | 265     | Dealbata       | Mastra        | 95          |
| Costatus        | Balanus       | 11      | Declivis       | Mya           | 40          |
| Costatus        | Murex         | 265     | Decollatus     | Murex         | 238         |

G g g g

Decussata



|               |             | Page.  |                |             | Page.   |
|---------------|-------------|--------|----------------|-------------|---------|
| Decussata     | Venus       | 124    | Edule          | Cardium     | 76 569  |
| Decussata     | Helix       | 399    | Edulis         | Ostrea      | 151     |
| Decussatum    | Buccinum    | 244    | Edulis         | Mytilus     | 159 581 |
| Decussatus    | Turbo       | 322    | Elegans        | Nerita      | 342     |
| Deflorata     | Venus       | 123    | Elegans        | Turbo       | 333 342 |
| Delectabilis  | Helix       | 430    | Elegantissimus | Turbo       | 298     |
| Dentalis      | Dentalium   | 495    | Elongata       | Lepas       | 10      |
| Denticulata   | Donax       | 104    | Elongatum      | Cardium     | 82      |
| Denticulata   | Bulla       | 217    | Emarginata     | Bulla       | 216     |
| Denticulata   | Voluta      | 234    | Ensis          | Solen       | 48      |
| Denticulatus  | Turbo       | 315    | Entalis        | Dentalium   | 494     |
| Depressa      | Mya         | 563    | Ephippium      | Anomia      | 155     |
| Depressa      | Tellina     | 54 56  | Erica          | Helix       | 437     |
| Depressa      | Helix       | 439    | Ericetorum     | Helix       | ib.     |
| Depressa      | Patella     | 475    | Erinaceus      | Murex       | 259     |
| Depressior    | Pectunculus | 65     | Erycina        | Venus       | 112     |
| Depressulus   | Nautilus    | 190    | Erythroleucos  | Trochus     | 277     |
| Despectus     | Murex       | 256    | Exasperatus    | Trochus     | ib.     |
| Detrita       | Helix       | 384    | Exiguum        | Cardium     | 82      |
| Diadema       | Balanus     | 13     | Exiguus        | Trochus     | 277     |
| Diadema       | Lepas       | ib.    | Exoleta        | Venus       | 116     |
| Diaphana      | Bulla       | 225    | Exoletus       | Turbo       | 295     |
| Discors       | Tellina     | 61     |                | F           |         |
| Discors       | Cardium     | 84     | Faba           | Pholas      | 28      |
| Discors       | Mytilus     | 167    | Fabula         | Tellina     | 61      |
| Discrepans    | Mytilus     | 169    | Fasciata       | Cochlea     | 411     |
| Distorta      | Mya         | 42     | Fasciata       | Helix       | 446     |
| Distorta      | Ostrea      | 148    | Fasciatus      | Pectunculus | 110     |
| Distortus     | Pecten      | ib.    | Fasciatus      | Cuneus      | 128     |
| Divisus       | Turbo       | 334    | Fasciatus      | Turbo       | 346     |
| Dolioliformis | Turbo       | 336    | Fascicularis   | Chiton      | 5       |
| Donacina      | Tellina     | 58     | Fascicularis   | Lepas       | 557     |
| Dubia         | Mya         | 28     | Fausta         | Tellina     | 64      |
| Duplicatus    | Turbo       | 296    | Ferroensis     | Tellina     | 55      |
|               | E           |        | Fervensis      | Tellina     | ib.     |
| Eburneus      | Turbo       | 317    | Fissura        | Patella     | 490     |
| Echinatum     | Cardium     | 78 568 | Fissurella     | Patella     | 491     |
| Edentula      | Voluta      | 204    | Flexuosa       | Tellina     | 72      |

Fluviatile



|             |               | Page.   |                |            | Page.   |
|-------------|---------------|---------|----------------|------------|---------|
| Fluviatile  | Cardium       | 80      | Glycymeris     | Arca       | 136     |
| Fluviatilis | Nerita        | 470     | Gracile        | Buccinum   | 258     |
| Fluviatilis | Patella       | 482     | Gracilis       | Murex      | 267     |
| Fluviatilis | Ancylus       | ib.     | Granatum       | Trochus    | 275     |
| Foliatus    | Cuneus        | 103     | Granulata      | Venus      | 122     |
| Fontana     | Helix         | 462     | Granulata      | Serpula    | 500     |
| Fontinalis  | Bulla         | 226     | Granulata      | Sabella    | 544     |
| Fontinalis  | Turbo         | 348     | Græca          | Patella    | 492     |
| Fossaria    | Helix         | 372     |                |            |         |
| Fragilis    | Solen         | 51 565  |                | H          |         |
| Fragilis    | Mastra        | 96      | Haliotoidea    | Bulla      | 211 583 |
| Fragilis    | Pinna         | 178     | Helicinus      | Turbo      | 441     |
| Fragilis    | Tellina       | 41      | Hepaticum      | Buccinum   | 243     |
| Fragilis    | Trochus       | 275     | Heterostropha  | Serpula    | 503     |
| Fragilis    | Helix         | 369 371 | Heterostrophon | Buccinum   | 228     |
| Fulgidus    | Turbo         | 332     | Hians          | Pholas     | 20      |
| Fusca       | Helix         | 424     | Hians          | Mastra     | 101     |
| Fuscatus    | Murex         | 269     | Hispida        | Helix      | 420 423 |
| Fuscus      | Trochus       | 289     | Hortensis      | Helix      | 408 412 |
| Fuscus      | Turbo         | 330     | Hungarica      | Patella    | 486     |
|             | G             |         | Hydatis        | Bulla      | 217 584 |
| Gadus       | Dentalium     | 496     | Hypnorum       | Bulla      | 228     |
| Gallina     | Trigonella    | 92      |                | I          |         |
| Gallina     | Venus         | 113     | Imbricatus     | Planorbis  | 464     |
| Glaber      | Pectunculus   | 115     | Imperforatum   | Dentalium  | 496     |
| Glaber      | Pecten        | 150     | Inæquivalvis   | Mya        | 38      |
| Glaber      | Turbo         | 390     | Inæquivalvis   | Tellina    | 75      |
| Glaber      | Strombiformis | 398     | Incarnata      | Tellina    | 55 63   |
| Glabra      | Helix         | 372     | Incurvata      | Serpula    | 518     |
| Glabrum     | Buccinum      | ib.     | Incurvatum     | Vermiculum | 518     |
| Glabrum     | Dentalium     | 597     | Incurvatus     | Mytilus    | 160     |
| Glauca      | Mastra        | 571     | Ingens         | Pinna      | 180 583 |
| Glaucina    | Nerita        | 469     | Interruptus    | Turbo      | 329     |
| Globosa     | Helix         | 444     | Interstinctus  | Turbo      | 324     |
| Globosum    | Vermiculum    | 523     | Intertexta     | Lepas      | 12      |
| Glutinosa   | Helix         | 379     | Intertextus    | Balanus    | ib.     |
| Glutinosum  | Buccinum      | ib.     | Intorta        | Patella    | 477     |
|             |               |         |                | Intortum   |         |



|              |            | Page.   |                  |          | Page.   |
|--------------|------------|---------|------------------|----------|---------|
| Intortum     | Vermiculum | 520     | Lævis            | Chiton   | 2       |
| Intricata    | Serpula    | 509     | Lævis            | Pecten   | 150     |
| Irus         | Donax      | 108 573 | Lævis            | Ostrea   | ib.     |
| Islandica    | Venus      | 114     | Lævis            | Turbo    | 398     |
| Itala        | Helix      | 437     | Lævis            | Patella  | 477     |
|              | J          |         | Lagena           | Serpula  | 423     |
| Jacobæa      | Ostrea     | 144     | Laminatus        | Turbo    | 359     |
| Jacobæus     | Pecten     | ib.     | Lapicida         | Helix    | 435     |
| Jacobi       | Pecten     | ib.     | Lapillus         | Buccinum | 239     |
| Jaculator    | Nerita     | 389     | Larvæ reticulata | Patella  | 492     |
| Jonensis     | Voluta     | 233     | Legumen          | Solen    | 50      |
| Jugosus      | Nautilus   | 198     | Legumen          | Nautilus | 197     |
| Jugosus      | Turbo      | 586     | Lignaria         | Bulla    | 205     |
| Juniperi     | Turbo      | 340     | Lignorum         | Pholas   | 559     |
|              | L          |         | Limbata          | Helix    | 450     |
| Labiata      | Turbo      | 362     | Limosa           | Helix    | 377 381 |
| Labiosa      | Helix      | 400     | Lincina          | Turbo    | 342     |
| Lackhamensis | Helix      | 394     | Lincta           | Venus    | 116     |
| Lactea       | Tellina    | 70      | Linearis         | Murex    | 261     |
| Lactea       | Arca       | 138     | Lineata          | Ostrea   | 147     |
| Lactea       | Serpula    | 522     | Lineata          | Helix    | 191     |
| Lacteum      | Vermiculum | ib.     | Lineatum         | Buccinum | 245     |
| Lacteus      | Turbo      | 310     | Lineatus         | Trochus  | 281 284 |
| Lacuna       | Helix      | 428     | Lineatus         | Turbo    | 281     |
| Lacustre     | Cardium    | 89      | Lineatus         | Pecten   | 147 579 |
| Lacustris    | Tellina    | ib.     | Listeri          | Mastra   | 96      |
| Lacustris    | Nautilus   | 191     | Listeri          | Trochus  | 427     |
| Lacustris    | Nerita     | 471     | Litterata        | Venus    | 124 127 |
| Lacustris    | Patella    | 482 484 | Littoralis       | Nerita   | 467     |
| Lacustris    | Ancylus    | 484     | Littoreus        | Turbo    | 301     |
| Læta         | Tellina    | 57 567  | Lobata           | Serpula  | 515     |
| Læve         | Buccinum   | 251     | Lobatulus        | Nautilus | ib.     |
| Læve         | Vermiculum | 524     | Longiusculum     | Buccinum | 248     |
| Lævigata     | Donax      | 107     | Lubrica          | Helix    | 390     |
| Lævigata     | Helix      | 382     | Lucida           | Helix    | 425     |
| Lævigatulus  | Nautilus   | 188     | Lucida           | Serpula  | 506     |
| Lævigatum    | Cardium    | 80      | Lucorum          | Helix    | 408     |
|              |            |         | Lumbricalis      | Sabella  | 549     |
|              |            |         | Lutea            | Helix    | 380     |

Lutraria



|               |             | Page.   |              |            | Page.   |
|---------------|-------------|---------|--------------|------------|---------|
| Lutraria      | Mastra      | 99      | Muricatus    | Pholas     | 20      |
|               | M           |         | Muricatus    | Murex      | 262     |
| Macula        | Buccinum    | 241     | Mulcorum     | Turbo      | 335     |
| Maculata      | Tellina     | 75      |              | N          |         |
| Magna         | Chama       | 101     | Nævia        | Helix      | 430     |
| Magnum        | Buccinum    | 256     | Nana         | Helix      | 449     |
| Magus         | Trochus     | 283     | Nanus        | Pholas     | 26      |
| Margaritifera | Mya         | 33 561  | Nassaviensis | Trochus    | 280     |
| Marginatum    | Vermiculum  | 524     | Navalis      | Teredo     | 527     |
| Marginatus    | Chiton      | 1       | Navicula     | Bulla      | 217     |
| Marginatus    | Solen       | 48      | Nautileus    | Helix      | 464     |
| Marica        | Venus       | 122     | Nautileus    | Turbo      | ib.     |
| Marica spuria | Venus       | ib.     | Nautiloides  | Serpula    | 515     |
| Matthioli     | Musculus    | 139     | Nebula       | Murex      | 267     |
| Maxima        | Ostrea      | 143     | Nebulosa     | Venus      | 129     |
| Maximus       | Pecten      | ib.     | Nemoralis    | Helix      | 411     |
| Medium        | Cardium     | 83      | Neritoidea   | Helix      | 383     |
| Membranaceus  | Pectunculus | 112     | Neritoides   | Turbo      | 467     |
| Membranaceus  | Helix       | 400     | Nitens       | Helix      | 425     |
| Mercenaria    | Venus       | 114     | Nitida       | Helix      | 191 ib. |
| Militaris     | Patella     | 488     | Nitidissima  | Helix      | 447     |
| Minima        | Venus       | 121     | Nitidissimus | Turbo      | 299     |
| Minimum       | Buccinum    | 241 247 | Nitidus      | Turbo      | 300     |
| Minimum       | Carychium   | 339     | Nivofus      | Turbo      | 326     |
| Minuta        | Arca        | 140     | Noæ          | Arca       | 139     |
| Minuta        | Helix       | 337     | Nodosum      | Cardium    | 81      |
| Minuta        | Serpula     | 505     | Novacula     | Solen      | 47      |
| Minutissimus  | Murex       | 273     | Nucleata     | Helix      | 429     |
| Minutum       | Buccinum    | 241 242 | Nucleus      | Arca       | 141     |
|               | 250         |         | Nucleus      | Turbo      | 389     |
| Minutus       | Solen       | 53      | Nux          | Cardium    | 86      |
| Mitrula       | Patella     | 486     |              | O          |         |
| Modiolus      | Arca        | 140     | Obliquus     | Nautilus   | 198     |
| Modiolus      | Mytilus     | 163     | Oblonga      | Mya        | 101     |
| Monotis       | Pecten      | 146     | Oblonga      | Patella    | 484     |
| Muricata      | Pinna       | 173 183 | Oblongum     | Vermiculum | 522     |
| Muricatulum   | Cardium     | 85      |              | Oblongum   |         |



|              |            | Page.   |                 |            | Page.       |
|--------------|------------|---------|-----------------|------------|-------------|
| Oblongum     | Cardium    | 80      | Parvus          | Pecten     | 149         |
| Obfcura      | Helix      | 391     | Parvus          | Turbo      | 310         |
| Obfoleta     | Ostrea     | 149     | Parvus          | Trochus    | 279         |
| Obfoletus    | Pecten     | ib.     | Pectinata       | Pinna      | 178         |
| Obtusa       | Bulla      | 223     | Pediculus       | Cypræa     | 200 201     |
| Obtusatus    | Turbo      | 301     | Pellucida       | Mastra     | 95          |
| Obtusissimum | Buccinum   | 251     | Pellucida       | Helix      | 425         |
| Obtusulum    | Buccinum   | 248 250 | Pellucida       | Nerita     | 472         |
| Obvoluta     | Helix      | 420     | Pellucida       | Patella    | 477         |
| Octanfracta  | Helix      | 396 588 | Pellucidus      | Solen      | 49 565      |
| Octona       | Helix      | 249 396 | Pellucidus      | Mytilus    | 160         |
| Opercularis  | Pecten     | 145     | Pellucidus      | Turbo      | 322         |
| Opercularis  | Ostrea     | ib.     | Penicillus      | Sabella    | 541         |
| Orbicularis  | Glycymeris | 136     | Perdix          | Buccinum   | 244         |
| Ovalis       | Mya        | 34 563  | Peregra         | Helix      | 373         |
| Ovalis       | Turbo      | 231     | Perforans       | Venus      | 127         |
| Ovata        | Mya        | 563     | Perforata       | Serpula    | 519         |
| Ovata        | Venus      | 120     | Perforatum      | Vermiculum | 519         |
|              | P          |         | Perlucidum      | Vermiculum | 525         |
| Painted      | Turbo      | 301     | Perversus       | Turbo      | 355 357 359 |
| Pallida      | Bulla      | 222     | Perversus       | Helix      | 357         |
| Pallida      | Voluta     | ib.     | Perversus       | Strombif.  | 357 362     |
| Pallidula    | Nerita     | 468     | Pervium         | Vermiculum | 518         |
| Pallidulus   | Nerita     | ib.     | Pes Pelecani    | Strombus   | 253         |
| Pallidus     | Turbo      | 325     | Petræa          | Helix      | 403         |
| Paludosa     | Helix      | 440     | Pholadia        | Mya        | 28 559      |
| Palustris    | Helix      | 370     | Pictorum        | Mya        | 34 35 36    |
| Paphia       | Venus      | 110     | Pictus          | Pecten     | 145         |
| Papillaris   | Helix      | 361     | Pictus          | Turbo      | 319         |
| Papillofus   | Trochus    | 275     | Pileus morionis | } Patella  | 486         |
| Patula       | Bulla      | 207     | major           |            |             |
| Patulus      | Turbo      | 375     | Pilosa          | Arca       | 136         |
| Parva        | Chama      | 28      | Pinna           | Solen      | 566         |
| Parva        | Cochlea    | 328     | Piperata        | Mastra     | 98          |
| Parva        | Patella    | 480     | Pisana          | Helix      | 415         |
| Parvum       | Cardium    | 80      | Piscinalis      | Helix      | 349         |
| Parvus       | Pholas     | 22 23   | Piscinalis      | Nerita     | ib.         |
|              |            |         | Pisiformis      | Tellina    | 84          |

Plana



|                 |                   | Page.   |              |               | Page.  |
|-----------------|-------------------|---------|--------------|---------------|--------|
| Plana           | Trigonella        | 96      | Quadrifidus  | Aporrhais     | 253    |
| Planata         | Tellina           | 59      |              | R             |        |
| Planorbis       | Helix 450 451 454 |         | Radiata      | Tellina       | 55 94  |
| Plebeia         | Donax             | 107     | Radiata      | Trigonella    | 94     |
| Plicatus        | Turbo             | 325     | Radiata      | Helix         | 432    |
| Plumula         | Bulla             | 214 583 | Radicula     | Nautilus      | 197    |
| Polita          | Helix             | 398     | Radula       | Tellina       | 68 567 |
| Polita          | Tellina           | 59      | Rectus       | Nautilus      | 197    |
| Politus         | Turbo             | 398     | Reflexa      | Serpula       | 506    |
| Pomaria         | Helix             | 405     | Reflexus     | Turbo         | 342    |
| Pomatia         | Helix             | ib.     | Regulbientis | Bulla         | 223    |
| Porcatum        | Buccinum          | 245 259 | Remies       | Tellina       | 64     |
| Porcatus        | Balanus           | 6       | Refiliens    | Bulla         | 219    |
| Præcifus        | Mytilus           | 165     | Refupinata   | Helix         | 444    |
| Prætenuis       | Mya               | 41      | Reticulata   | Tellina       | 67     |
| Prætenuis       | Chama             | ib.     | Reticulata   | Helix         | 444    |
| Proficua        | Tellina           | 66      | Reticulata   | Patella       | 492    |
| Pubescens       | Mya               | 40      | Reticulatum  | Buccinum      | 240    |
| Pullastra       | Venus             | 125     | Reticulatus  | Cuneus        | 124    |
| Pullus          | Buccinum          | 240 242 | Reticulatus  | Murex         | 272    |
| Pullus          | Turbo             | 319     | Reticulatus  | Strombiformis | ib.    |
| Punctata        | Bulla             | 215     | Reticulatus  | Turbo         | 322    |
| Punctatus       | Turbo             | 271     | Retiformis   | Turbo         | 330    |
| Punctatus       | Balanus           | 8       | Retorta      | Serpula       | 524    |
| Punctura        | Turbo             | 320     | Retortum     | Vermiculum    | ib.    |
| Punicea         | Tellina           | 57      | Reversa      | Serpula       | 508    |
| Purpureus       | Murex             | 260     | Rhomboides   | Venus         | 129    |
| Purpuro         | Buccinum          | 239     | Rigida       | Tellina       | 65     |
| Pufilla         | Helix             | 349     | Rivalis      | Tellina       | 86 87  |
| Pufilla         | Vertigo           | 363     | Rivulus      | Turbo         | 331    |
| Pufilla         | Nerita            | 349     | Rotundata    | Tellina       | 71     |
| Pufio           | Ostrea            | 148     | Rotundata    | Helix         | 432    |
| Pufio           | Pecten            | ib.     | Ruber        | Turbo         | 320    |
| Putris          | Helix             | 373 376 | Rubra        | Tellina       | 63     |
| Pygmæum         | Cardium           | 82      | Rubrum       | Cardium       | 83     |
|                 | Q                 |         | Rudis        | Turbo         | 304    |
| Quadrifasciatus | Turbo             | 328     | Rudis        | Sabella       | 547    |
|                 |                   |         |              | Rufescens     |        |



|                    |           |              |               |             |              |
|--------------------|-----------|--------------|---------------|-------------|--------------|
| Rufescens          | Cochlea   | Page.<br>420 | Sphærica      | Helix       | Page.<br>389 |
| Rufescens          | Helix     | 420          | Sphærica      | Nerita      | ib.          |
| Rufescens cantiana | Helix     | 422          | Spinifera     | Venus       | 577          |
| Rufus              | Murex     | 263          | Spinosa       | Helix       | 464          |
| Rugosa             | Venus     | 113          | Spinulosa     | Helix       | 429          |
| Rugosus            | Balanus   | 8            | Spiralis      | Turbo       | 323          |
| Rugosus            | Mytilus   | 164          | Spirillum     | Serpula     | 499          |
| Rupium             | Turbo     | 391          | Spirorbis     | Helix       | 455          |
| Rusticum           | Cardium   | 569          | Spirorbis     | Planorbis   | ib.          |
|                    | S         |              | Spirorbis     | Serpula     | 498          |
| Sandvicensis       | Turbo     | 332          | Squalida      | Tellina     | 56           |
| Scalpellum         | Lepas     | 18           | Squamosus     | Solen       | 565          |
| Scriptus           | Turbo     | 333          | Squamosum     | Vermiculum  | 526          |
| Segmentinus        | Nautilus  | 195          | Squamula      | Anomia      | 156          |
| Semicostatus       | Turbo     | 326          | Stagnalis     | Helix       | 367 371      |
| Semilituus         | Nautilus  | 196          | Stagnorum     | Helix       | 390          |
| Seminulum          | Serpula   | 520          | Striata       | Lepas       | 12           |
| Semistriata        | Tellina   | 63           | Striata       | Pholas      | 26           |
| Septangularis      | Murex     | 268          | Striata       | Tellina     | 60           |
| Septemvalvis       | Chiton    | 3            | Striata       | Anomia      | 157          |
| Sericea            | Helix     | 420          | Striata       | Ostrea      | 153          |
| Setiformis         | Sabella   | 553          | Striata       | Helix       | 445          |
| Sexdentatus        | Turbo     | 337          | Striatula     | Venus       | 113          |
| Shepeianus         | Turbo     | 312          | Striatulus    | Pectunculus | ib.          |
| Siliqua            | Solen     | 46           | Striatulus    | Turbo       | 306          |
| Similis            | Helix     | 449          | Striatum      | Ostrea      | 153          |
| Similis            | Planorbis | ib.          | Striatum      | Buccinum    | 237          |
| Sinenfis           | Patella   | 489          | Striatum      | Dentalium   | 495          |
| Sinistrorsa        | Serpula   | 504          | Striatum      | Vermiculum  | 523          |
| Sinuosa            | Venus     | 72 120       | Striatus      | Balanus     | 12           |
| Sinuofus           | Murex     | 264          | Striatus      | Pholas      | 26 559       |
| Solen              | Chama     | 52           | Striatus      | Mytilus     | 173          |
| Solida             | Mastra    | 92           | Striatus      | Trochus     | 278          |
| Solidula           | Tellina   | 63           | Striatus      | Turbo       | 312 342      |
| Soluta             | Bulla     | 219          | Strigatus     | Pectunculus | 112          |
| Soluta magna       | Bulla     | ib.          | Strigatus     | Turbo       | 331          |
| Soluta parva       | Bulla     | ib.          | Stultorum     | Mastra      | 93 94 570    |
|                    |           |              | Subarcuatulus | Nautilus    | 196          |
|                    |           |              |               | Subarcuatus |              |



|                |               | Page.   |                  |             | Page.   |
|----------------|---------------|---------|------------------|-------------|---------|
| Subarcuatus    | Nautilus      | 198     | Tornatilis       | Voluta      | 231     |
| Subarcuatus    | Turbo         | 333     | Tortuosa         | Arca        | 139     |
| Subcarinata    | Helix         | 438     | Trachea          | Dentalium   | 497     |
| Subcordata     | Venus         | 121     | Triangulatus     | Turbo       | 377     |
| Subcylindrica  | Helix         | 393     | Triangularis     | Mastra      | 99      |
| Subcylindrica  | Sabella       | 552     | Triangularis     | Venus       | 577     |
| Subluteus      | Turbo         | 310     | Tridens          | Turbo       | 338     |
| Suborbicularis | Mya           | 39      | Tridens          | Helix       | 338     |
| Subrotundum    | Vermiculum    | 521     | Trifasciata      | Tellina     | 55 58   |
| Subrufus       | Ostrea        | 145     | Trifasciatus     | Turbo       | 327     |
| Subrufus       | Pecten        | ib.     | Triquetra        | Serpula     | 509 511 |
| Subrufus       | Turbo         | 334     | Trochiformis     | Helix       | 427     |
| Subtruncata    | Mastra        | 92 570  | Trochulus        | Helix       | ib.     |
| Subtruncata    | Trigonella    | 93      | Truncata         | Chama       | 32      |
| Subtruncatus   | Turbo         | 300     | Truncata         | Mya         | 32      |
| Subumbilicatus | Turbo         | 316     | Truncata         | Bulla       | 223     |
| Succinea       | Helix         | 377     | Truncatula       | Helix       | 300     |
| Sulcata        | Lepas         | 17      | Truncatus        | Cuneus      | 104     |
| Sulcata        | Venus         | 131     | Truncatus        | Pectunculus | 131     |
| Sulcata        | Serpula       | 500     | Truncatus        | Murex       | 265     |
| Sulcatus       | Pectunculus   | 113     | Truncatus        | Turbo       | 300     |
|                | T             |         | Trunculus        | Donax       | 103     |
| Tenebrosus     | Turbo         | 303     | Tubercularis     | Murex       | 270     |
| Tentaculata    | Helix         | 389     | Tuberculata      | Haliotis    | 473     |
| Tenuis         | Tellina       | 59      | Tuberculatus     | Turbo       | 269     |
| Tenuis         | Mastra        | 572     | Tuberculatum     | Cardium     | 77 568  |
| Tenuis         | Trochus       | 275 586 | Tuberculatus     | Trochus     | 283     |
| Terebra        | Turbo         | 293     | Tubiformis       | Sabella     | 544     |
| Terebra        | Strombiformis | 293     | Tubularia        | Serpula     | 513     |
| Teredo         | Serpula       | 527     | Tubularia melit. | Corallina   | 541     |
| Terrestre      | Buccinum      | 248     | Tubulata         | Helix       | 446     |
| Terrestris     | Trochus       | 287     | Tumidus          | Trochus     | 280     |
| Textrix        | Venus         | 127     | Tumidus          | Turbo       | 342     |
| Thermalis      | Turbo         | 349     | Tunica Cepæ      | Anomia      | 155     |
| Tigerina       | Venus         | 119     | Turricula        | Murex       | 262     |
| Tintinnabulum  | Balanus       | 10 11   | Turritus         | Planorbis   | 228     |
| Tintinnabulum  | Lepas         | 10      | Turturum         | Helix       | 420     |

H h h h

Vagina



| V            |             |         |              |            |         |
|--------------|-------------|---------|--------------|------------|---------|
|              |             | Page.   |              |            | Page.   |
| Vagina       | Solen       | 43 565  | Vulgaris     | Mytilus    | 159     |
| Varia        | Ostrea      | 146     | Vulgaris     | Cochlea    | 408     |
| Variabilis   | Tellina     | 54      | Vulgaris     | Haliotis   | 473     |
| Variegata    | Tellina     | 69      | Vulgata      | Patella    | 475     |
| Variegata    | Helix       | 446     | Vulgatum     | Patella    | ib.     |
| Variegatus   | Turbo       | 295     |              | Buccinum   | 240     |
| Varius       | Pecten      | 146     | U            |            |         |
| Ventilabrum  | Amphitrite  | 541     | Ulvæ         | Turbo      | 318     |
| Ventrosus    | Turbo       | 317     | Ulvæ         | Helix      | ib.     |
| Vermicularis | Serpula     | 509 511 | Umbilicalis  | Trochus    | 286     |
| Verruca      | Lepas       | 12      | Umbilicaris  | Trochus    | ib.     |
| Verrucosa    | Venus       | 112     | Umbilicata   | Bulla      | 222     |
| Vespertinus  | Solen       | 54      | Umbilicata   | Helix      | 434     |
| Vertigo      | Turbo       | 363     | Umbilicatus  | Nautilus   | 191     |
| Vertigo      | Helix       | ib.     | Umbilicatus  | Mytilus    | 164     |
| Vetula       | Pectunculus | 110     | Umbilicatus  | Trochus    | 286     |
| Vinctus      | Turbo       | 307     | Umbilicatus  | Helix      | 457     |
| Virgata      | Helix       | 415     | Umbilicatus  | Planorbis  | 450     |
| Virgata      | Cochlea     | ib.     | Undata       | Tellina    | 71      |
| Virginea     | Venus       | 128 576 | Undata       | Venus      | 117 574 |
| Vittatus     | Cuneus      | 103     | Undatum      | Buccinum   | 237 585 |
| Vitrea       | Serpula     | 507     | Undulata     | Anomia     | 157     |
| Vitreus      | Turbo       | 321     | Ungarica     | Patella    | 486     |
| Vivipara     | Helix       | 386     | Ungulinus    | Mytilus    | 582     |
| Vivipara     | Cochlea     | 387     | Ungulinus    | Turbo      | 293     |
| Vivipara     | Nerita      | ib.     | Unicus       | Turbo      | 299     |
| Voluta       | Cypræa      | 203     | Unidentatus  | Turbo      | 324     |
| Vortex       | Helix       | 454     | Unifasciata  | Cochlea    | 414     |
| Vortex       | Planorbis   | ib.     | Unifasciatus | Turbo      | 327     |
| Vulgare      | Cardium     | 76      | Unispiralis  | Helix      | 443     |
| Vulgare      | Buccinum    | 237     | Urnæ         | Vermiculum | 525     |
| Vulgare      | Dentalium   | 494     | Z            |            |         |
| Vulgare      | Ostrea      | 151     | Ziziphinus   | Trochus    | 274     |
| Vulgaris     | Balanus     | 7       | Zonaria      | Trigonella | 92      |
| Vulgaris     | Pecten      | 143     | Zonaria      | Helix      | 415 418 |

EXPLA-



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EXPLANATIONS

OF THE

Abbreviated Names of the principle Authors referred to.

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FINIS.



# INDEX to the PLATES.

| I.   |           |              |     |      |          |             | Page. |
|------|-----------|--------------|-----|------|----------|-------------|-------|
| 1    | Mya       | Distorta     | 42  | 3    | Arca     | Noæ         | 139   |
| 2    | Mya       | Prætenuis    | 41  | 4    | Pecten   | Lævis       | 150   |
| 3    | Lepas     | Scalpellum   | 18  | 5    | Anomia   | Aculeata    | 157   |
| 4    | Solen     | Minutus      | 53  | 6    | Anomia   | Undulata    | 157   |
| 5    | Balanus   | Punctatus    | 8   | V.   |          |             |       |
| 6    | Lepas     | Sulcata      | 17  | 1    | Mastra   | Dealbata    | 95    |
| 7    | } Pholas  | Parvus       | 22  | 2    | Donax    | Plebeia     | 107   |
| 8    |           |              |     | 3    | Pinna    | Muricata    | 183   |
| II.  |           |              |     | 4    | Donax    | Complanata  | 106   |
| 1    | } Tellina | Radula       | 68  | VI.  |          |             |       |
| 2    |           |              |     | 1    | Cypræa   | Bullata     | 202   |
| 3    | Tellina   | Rotundata    | 71  | 2    | Voluta   | Catenata    | 236   |
| 4    | Tellina   | Lactea       | 70  | 3    | Nautilus | Lacustris   | 191   |
| III. |           |              |     | 4    | Nautilus | Radicula    | 197   |
| 1    | Venus     | Subcordata   | 121 | 5    | Nautilus | Subarcuatus | 198   |
| 2    | Cardium   | arcuatum     | 85  | 6    | Helix    | Fontana     | 462   |
| 3    | Venus     | Minima       | 121 | 7    | Cypræa   | Voluta      | 203   |
| 4    | Venus     | Deflorata    | 123 | VII. |          |             |       |
| 5    | Mastra    | Triangularis | 99  | 1    | Bulla    | Ampulla     | 306   |
| 6    | Venus     | Perforans    | 127 | 2    | Bulla    | Cylindracea | 221   |
| 7    | Mastra    | Boyfii       | 98  | 3    | Bulla    | Obtusa      | 223   |
| IV.  |           |              |     | 4    | Bulla    | Umbilicata  | 222   |
| 1    | Venus     | Tigerina     | 119 | 5    | Bulla    | Truncata    | 223   |
| 2    | Mytilus   | Præcifus     | 165 | 6    | Bulla    | Haliotoidea | 211   |
|      |           |              |     | 7    | Bulla    | Catena      | 215   |



|   |       |             |              |
|---|-------|-------------|--------------|
| 8 | Bulla | Diaphana    | Page.<br>225 |
| 9 | Helix | Subcarinata | 438          |

### VIII.

|   |          |           |     |
|---|----------|-----------|-----|
| 1 | Buccinum | Hepaticum | 243 |
| 2 | Buc.     | Minimum   | 247 |
| 3 | Buc.     | Terrestre | 248 |
| 4 | Buc.     | Macula    | 241 |
| 5 | Buc.     | Perdix    | 244 |

### IX.

|   |          |               |     |
|---|----------|---------------|-----|
| 1 | Murex    | Turricula     | 262 |
| 2 | Murex    | Muricatus     | ib. |
| 3 | Murex    | Purpureus     | 260 |
| 4 | Murex    | Linearis      | 261 |
| 5 | Murex    | Septangularis | 268 |
| 6 | Murex    | Attenuatus    | 266 |
| 7 | Buccinum | Ambiguum      | 242 |
| 8 | Murex    | Sinuofus      | 264 |

### X.

|   |         |                |     |
|---|---------|----------------|-----|
| 1 | Turbo   | Subtruncatus   | 300 |
| 2 | Turbo   | Elegantissimus | 298 |
| 3 | Trochus | Tenuis         | 275 |
| 4 | Trochus | Tumidus        | 280 |
| 5 | Turbo   | Striatulus     | 306 |
| 6 | Turbo   | Costatus       | 311 |
| 7 | Turbo   | Truncatus      | 300 |

### XI.

|   |       |              |     |
|---|-------|--------------|-----|
| 1 | Helix | Detrita      | 384 |
| 2 | Turbo | Tridens      | 338 |
| 3 | Helix | Lackhamensis | 394 |
| 4 | Turbo | Laminatus    | 359 |
| 5 | Turbo | Biplicatus   | 361 |
| 6 | Turbo | Labiata      | 362 |
| 7 | Turbo | Bidens       | 357 |
| 8 | Helix | Octanfracta  | 396 |
| 9 | Helix | Trochiformis | 427 |

|    |       |           |              |
|----|-------|-----------|--------------|
| 10 | Helix | Spinulosa | Page.<br>429 |
| 11 | Helix | Caperata  | 430          |
| 12 | Turbo | Perversus | 355          |

### XII.

|    |       |               |     |
|----|-------|---------------|-----|
| 1  | Turbo | Nitidissimus  | 299 |
| 2  | Turbo | Unicus        | 321 |
| 3  | Turbo | Vitreus       | ib. |
| 4  | Turbo | Decussatus    | 322 |
| 5  | Turbo | Punctura      | 320 |
| 6  | Turbo | Vertigo       | 363 |
| 7  | Turbo | Cingillus     | 328 |
| 8  | Turbo | Sexdentatus   | 337 |
| 9  | Turbo | Spiralis      | 323 |
| 10 | Turbo | Interstinctus | 324 |
| 11 | Turbo | Canalis       | 309 |
| 12 | Turbo | Juniperi      | 340 |
| 13 | Turbo | Ventrosus     | 317 |

### XIII.

|    |         |            |     |
|----|---------|------------|-----|
| 1  | Helix   | Fusca      | 424 |
| 2  | Helix   | Umbilicata | 434 |
| 3  | Helix   | Crenella   | 441 |
| 4  | Patella | Chinenfis  | 489 |
| 5  | Helix   | Depressa   | 439 |
| 6  | Helix   | Lucana     | 428 |
| 7  | Helix   | Labiosa    | 400 |
| 8  | Patella | Bimaculata | 482 |
| 9  | Patella | Antiquata  | 485 |
| 10 | Patella | Apertura   | 491 |
| 11 | Patella | Militaris  | 488 |

### XIV.

|   |            |            |     |
|---|------------|------------|-----|
| 1 | Vermiculum | Urnæ       | 525 |
| 2 | Vermiculum | Squamosum  | 526 |
| 3 | Vermiculum | Perlucidum | 525 |
| 4 | Nautilus   | Jugosus    | 198 |
| 5 | Nautilus   | Costatus   | 199 |
| 6 | Nautilus   | Radicula   | 177 |



|    |            |          |              |
|----|------------|----------|--------------|
| 7  | Dentalium  | Gadus    | Page.<br>496 |
| 8  | Monoculus  |          | 175          |
| 9  | Vermiculum | Oblongum | 522          |
| 10 | Dentalium  | Trachea  | 497          |

### XV.

|   |          |           |     |
|---|----------|-----------|-----|
| 1 | Buccinum | Cinctum   | 246 |
| 2 | Turbo    | Coniferus | 314 |
| 3 | Solen    | Pinna     | 566 |
| 4 | Nautilus | Calcar    | 189 |
| 5 | Murex    | Gracilis  | 267 |
| 6 | Murex    | Nebula    | ib. |
| 7 | Helix    | Decussata | 399 |
| 8 | Turbo    | Bryereus  | 313 |
| 9 | Bulla    | Plumula   | 214 |

### XVI.

|    |       |             |     |
|----|-------|-------------|-----|
| 1  | Helix | Limosa      | 381 |
| 2  | Helix | Auricularia | 375 |
| 3  | Helix | Peregra     | 373 |
| 4  | Helix | Putris      | 376 |
| 5  | Helix | Glutinosa   | 379 |
| 6  | Helix | Lutea       | 380 |
| 7  | Helix | Fragilis    | 369 |
| 8  | Helix | Stagnalis   | 367 |
| 9  | Helix | Fossaria    | 372 |
| 10 | Helix | Palustris   | 370 |

### VIGNETTE I.

- 1 Bulla hydatis, natural size, p. 217.
- 2 Ditto, with the anterior part of the animal, and lateral fin-like membranes protruded.
- 3 The gizzard or stomach of the animal. Natural size.

4 Ditto, as it appears when first extracted from the animal, magnified; shewing the tips of the plates A. A. A. covered by a thin membrane, and surrounding muscular integument, thickened at the upper part B.

C The part attached to the mouth, with the Oesophagus, or gullet, communicating with the gizzard.

D. The intestinal, or alimentary canal.

5 The gizzard laid open at its anterior end, shewing the three corrugated, corneous plates, E. E. E. with their connecting ligaments F. magnified.

6 A plate of ditto of its natural size.

7 Helix cristata, natural size, p. 460.

8 Ditto, with the anterior part of its animal protruded, as in the act of crawling, magnified.

### VIGNETTE II.

1 Bulla aperta, natural size, p. 208.

2 Animal of ditto, with the shell concealed under the posterior shield A

3 The gizzard, of its natural size, composed of three testaceous plates, shewing the smaller plate B. with the connecting ligament C.

4 Another view of the gizzard, shewing the two larger plates D. D. with their connecting ligament.

E. The gullet. F. The alimentary canal.



5 Animal of *Bulla plumula*, p. 214.

G. Its protruded foramen. H. H. the lower lamina, or border of the sustentaculum.

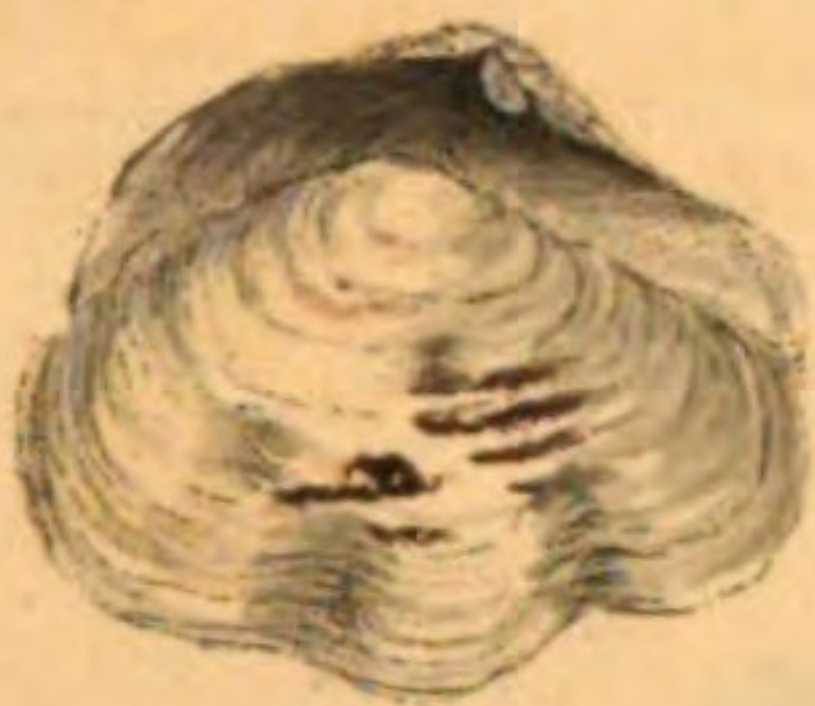
I. The upper lamina, under the middle of which the shell is concealed. K. A plumose feeler. L. the tentacula, at the base of which the eyes are placed.

6 Animal of *Bulla haliotoidea*, p. 211.

M. The membranaceous shield, under which the shell is concealed. N. a sinus, through which an appendage, or arm, is sometimes protruded. O. The tentacula, at the base of which the eyes are placed.



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P. D.

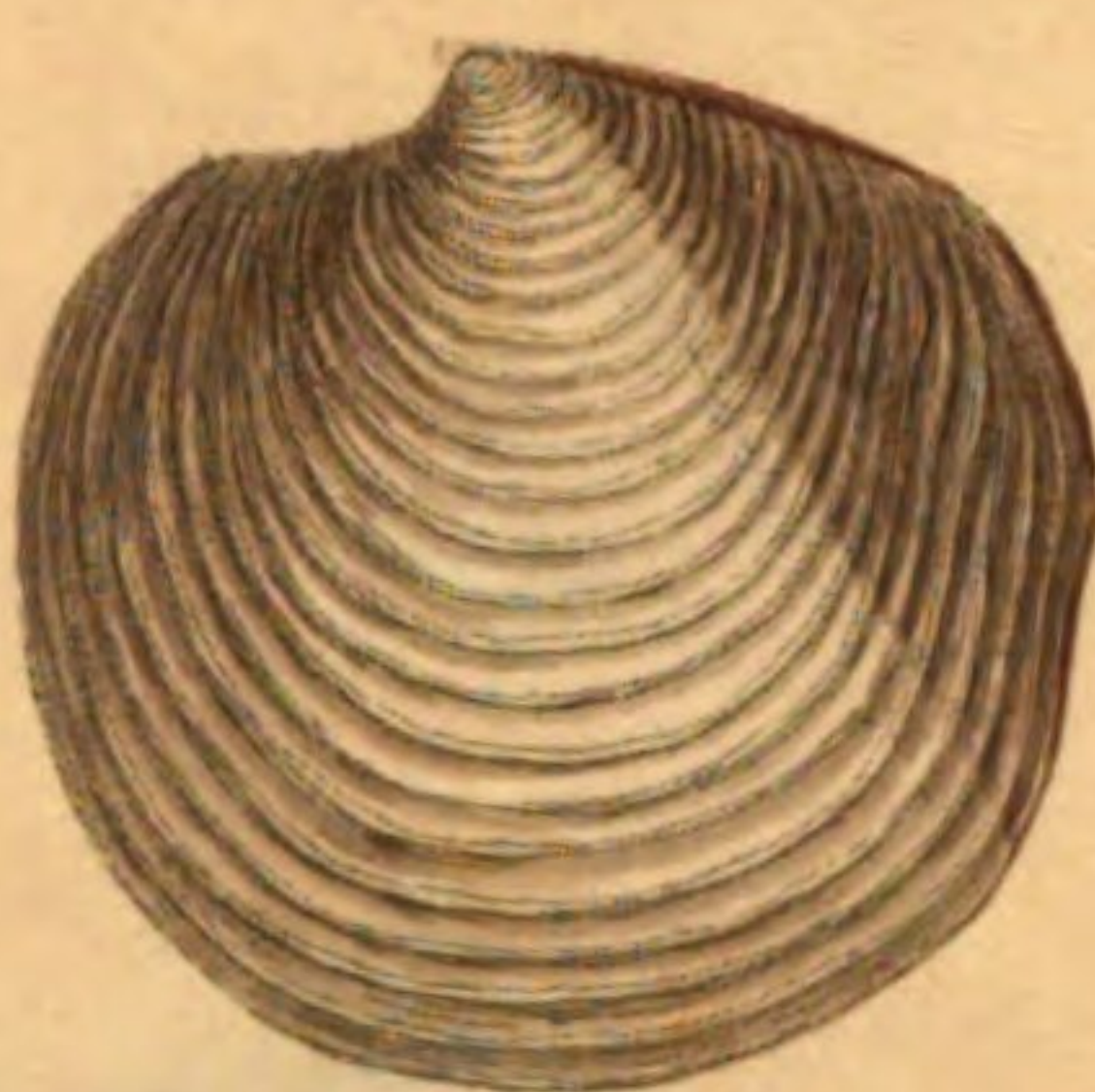


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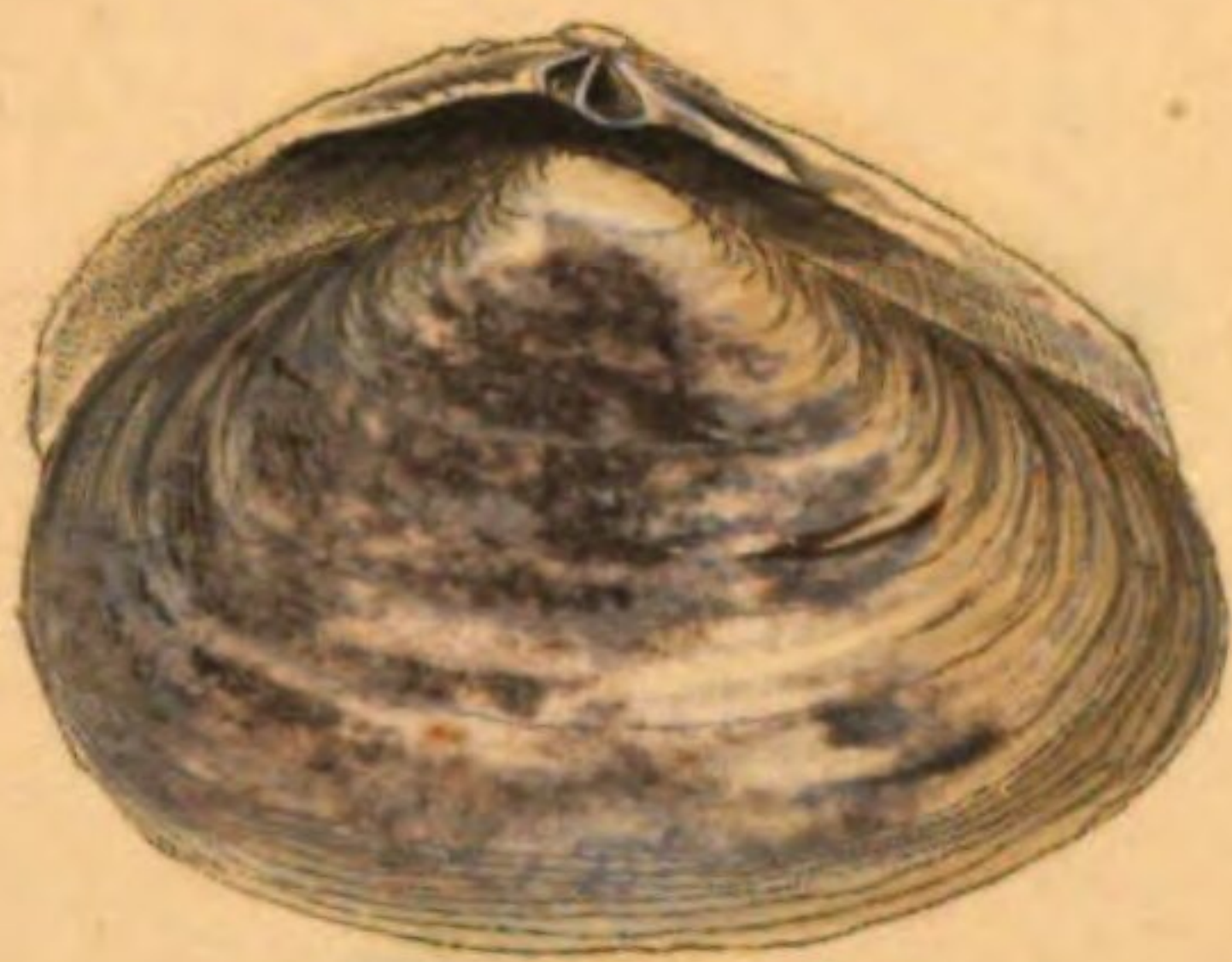




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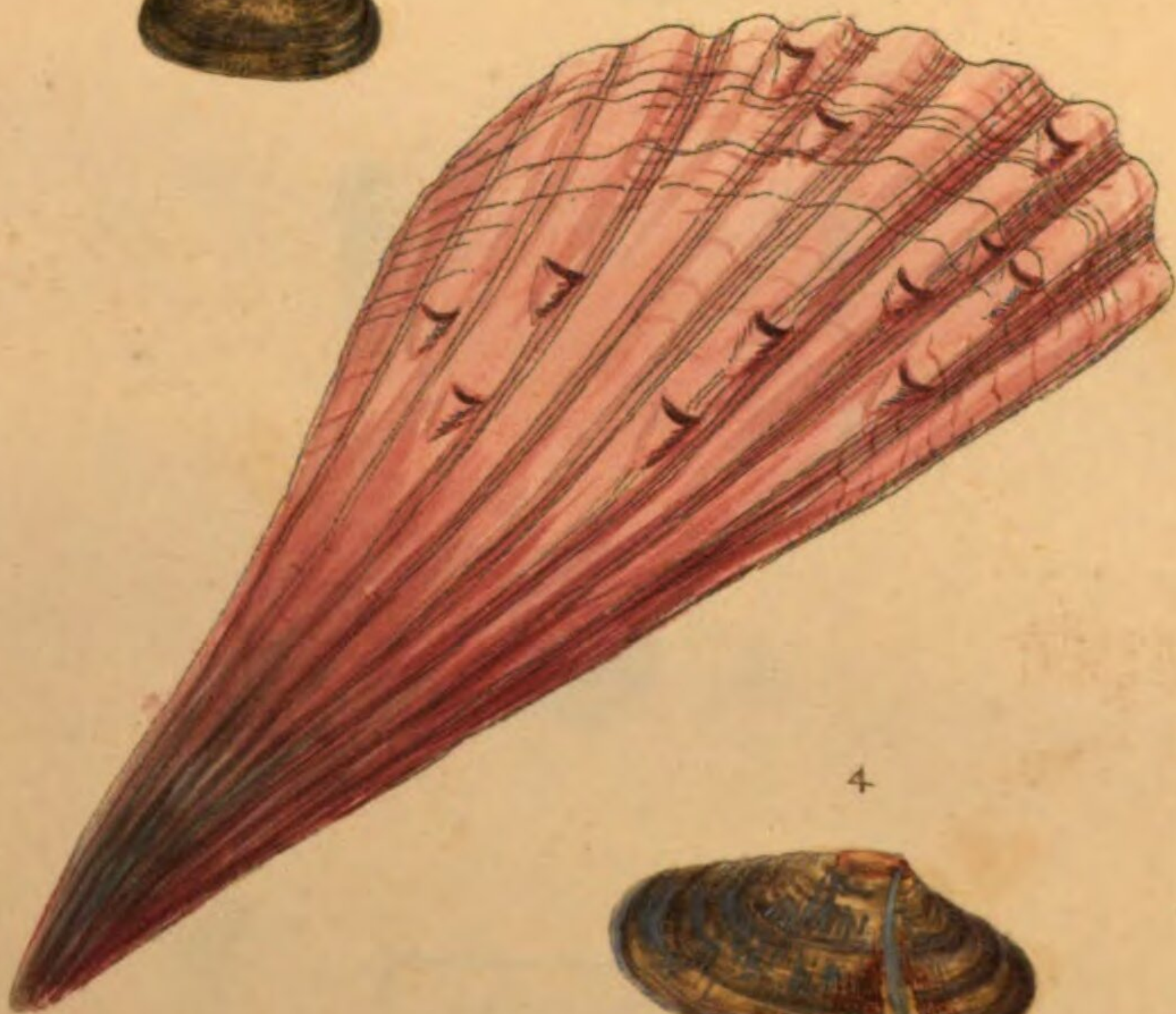
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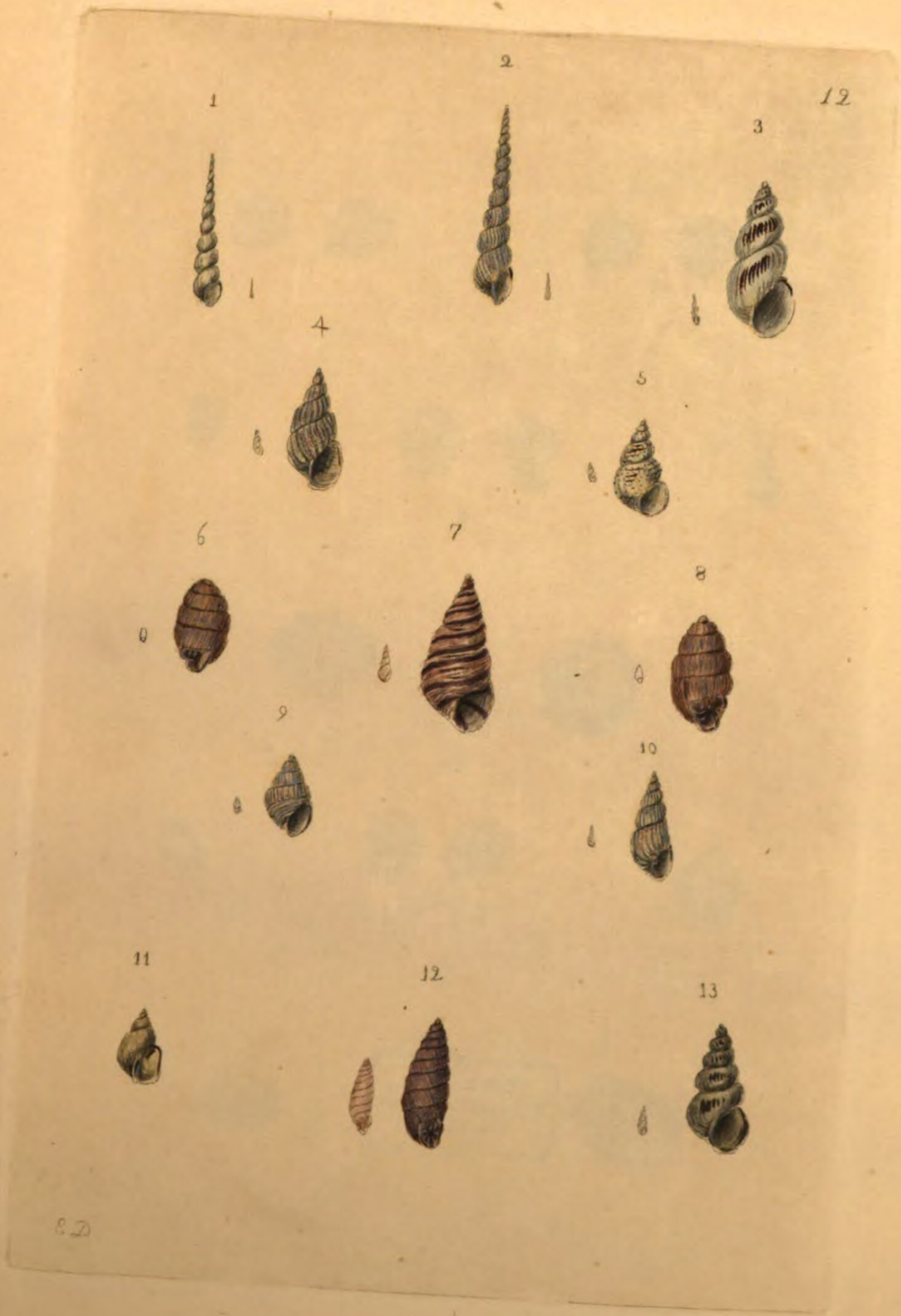


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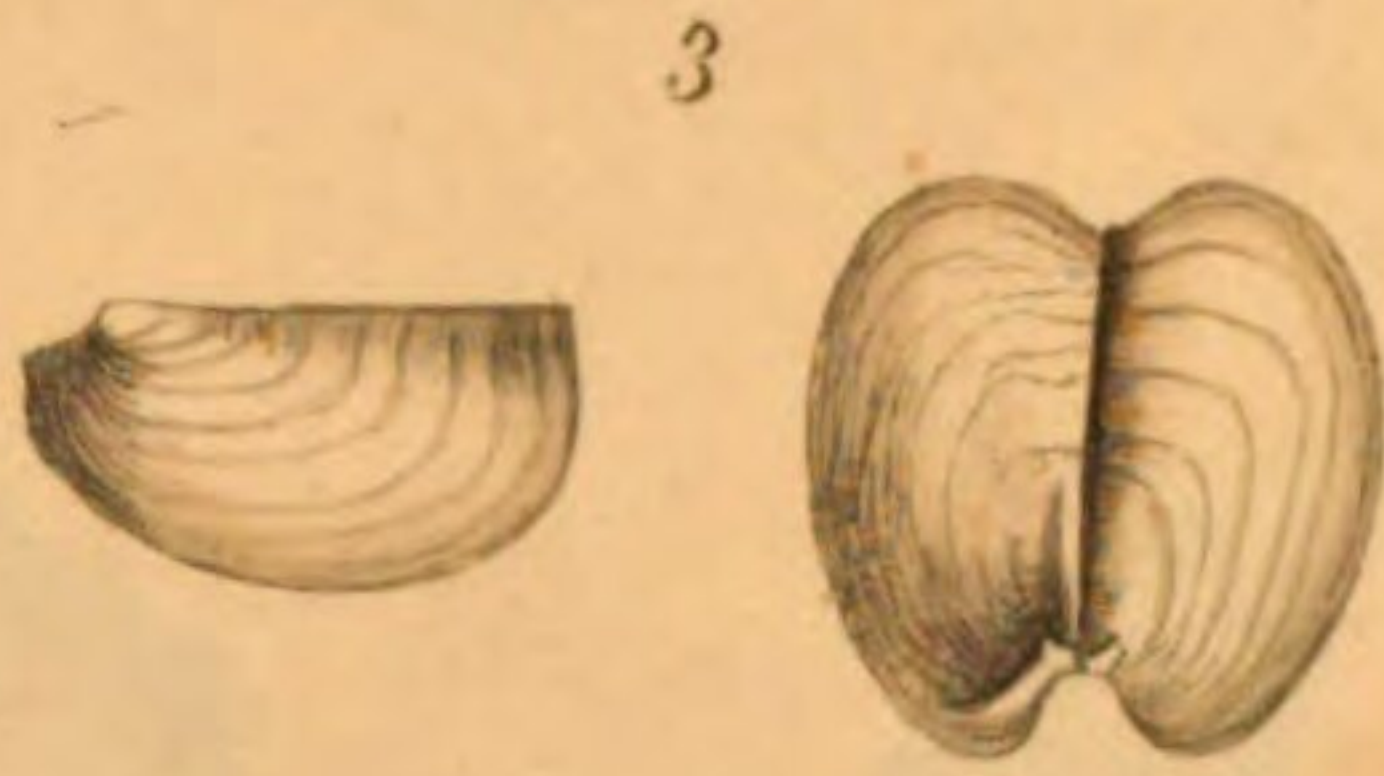
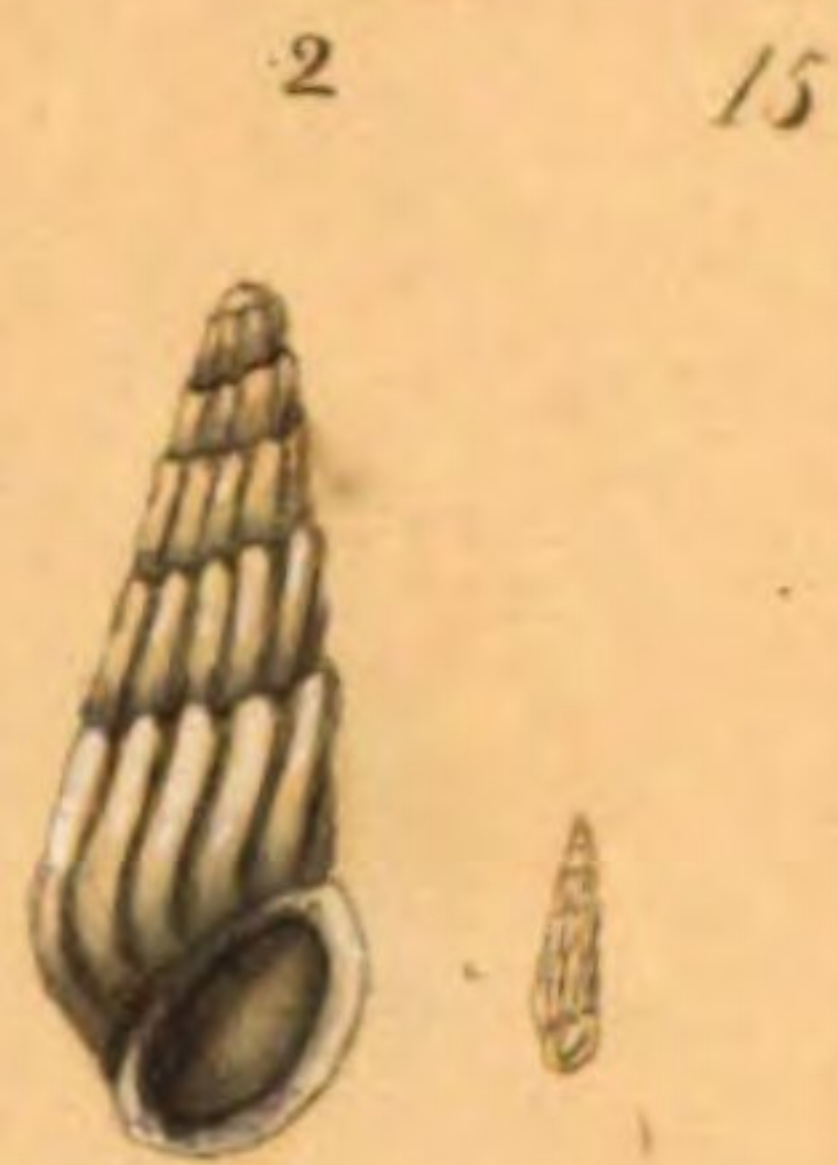


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Testacea britannica or natural history of British shells, marine, land,  
and fresh-water including the most minute ; systematically arranged and  
embellished with figures

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